THE JOURNAL

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ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

NOVEMBER 10TH, 1896.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The resignations of Messrs. J. COLES, J. CLEGHORN, R. BANGAY, I. J. SMITH, and the deaths of Sir J. PRESTWICH, and Messrs. A. PULFORD and Dr. J. H. LANGDON DOWN, were announced.

Mr. P. L. SCLATER, F.R.S., exhibited a Mancala Board from Nyasa-land, and read the following extract from a letter from Mr. Alfred Sharpe, H.B.M. Consul and Acting Commissioner, addressed to him, dated Zomba, August 7th, 1896.

"Another thing I am sending you which appears to me to be of great interest, is an African-made wooden board with cups in it for playing that African draughts game, which is at any rate 6,000 years old, if not more. This game is played with small pebbles. They put three in each hole and then move them and shift them about in a way which no white man can understand. I was very much struck in Cairo by seeing in the Museum there an almost similar draughts board made in alabaster which dated from, I think, the 2nd or 3rd dynasty. I also noticed in Egypt the children in the road playing the

same game, their board being little holes scratched in the ground. Here, in any native village, one may see the same game being played in a similar manner, that is, the holes being scratched in the flat ground.

"The African of course never changes, and it seems to me a very remarkable thing that this game (we know) has been played for five or six thousand years in Africa, from Cairo to the Cape. Perhaps you may think this native-made board of interest for the British Museum. Certainly, if it were put alongside one of the stone ones found in Egypt many thousand years ago, it would be rather a striking sight, I think."

Mr. C. H. READ exhibited a wooden mask from the North West coast of America, and Mr. H. BALFOUR various native Indian preparations of hemp for consumption.

The following papers were read :—

"On a Remarkable Bow and Arrows found in Egypt, believed to be of Assyrian Origin." By Mr. H. BALFOUR (with Exhibition).

"Life History of an Aghori Fakir, with Exhibition of his and other Drinking Vessels made of Human Skulls, and notes upon the same." By Mr. H. BALFOUR.

On a REMARKABLE ANCIENT BOW *and* ARROWS *believed to be of* ASSYRIAN ORIGIN. By HENRY BALFOUR, M.A.

[WITH PLATES IX AND X.]

I WAS recently enabled, through the kindness of Professor W. Flinders Petrie, to whom I am greatly indebted, to obtain an ancient archer's equipment of very exceptional interest. The bow is, I believe, unique, although one somewhat similar is in the Berlin Museum, and has been described by Dr. v. Luschan,[1] and also by Mr. C. J. Longman.[2] This latter specimen, however, while of great interest and importance, and obviously nearly allied to the one which I am about to describe, is unfortunately very imperfect, and much of its structure necessarily remains uncertain. I shall refer again to this specimen.

The bow, which came to me through Professor Petrie, was

[1] "Proc. Berlin Anthrop. Soc.," May, 1893.

[2] "Archery," Badminton Series, 1894, p. 63, etc., and in "Journ. Anthrop. Inst.," xxiv, Pl. X.

found under the following circumstances. A tomb of the XXVI dynasty was excavated at Thebes in Egypt, under the direction, I understand, of Mr. Butros, the Italian Consul. Amongst other things he found a bow, or rather two pieces of one, of the usual ancient Egyptian shape (Fig. 5), that is to say, a single-stave wooden bow, stout towards the centre, and tapering towards the ends, which curve forward rather abruptly; it is one of a type which is commonly to be seen in museums and collections of Egyptian antiquities, and differs but little from many modern African bows. This specimen I have, and exhibit it together with the arrows found with it, which are also of typical Egyptian form. Shortly after the finding of this bow one of the men, who had been employed by Mr. Butros in his excavations, produced a second bow with several arrows, which he said were found in the same tomb as the other bow and arrows. Both bows with their arrows came into the hands of a friend of Mr. Petrie's, and through the latter's kind mediation I was able to purchase them.

The bow which was found by the workman is in every way a remarkable specimen (Fig. 1). Although it was found in an Egyptian tomb, it is clearly not of indigenous origin. It is quite unlike the characteristic type of Egyptian bow. Instead of having been cut from a single piece of wood, it is of *composite* structure, an elaborate combination of different materials, one of which, at any rate, is foreign to the country in which the bow was found. Everything, in fact, points to this bow having come into Egypt from a more northerly region, whence it might possibly have been brought as a trophy of war, by an invading force, or by foreign mercenaries in the Egyptian service.

Description.—This bow is of very fine make, the work of a highly skilled bowyer, and it is beautifully finished. Although sufficiently well preserved to show its shape and structure accurately—a remarkable case of preservation from decay, when we consider the materials of which it is built up—it has been broken in two at the centre across the handle, and has, moreover, been subjected to the ravages of white ants, which have eaten away portions at various points. Nor is this altogether to be deplored, for, while the artistic perfection and intrinsic value of the bow as a complete specimen is sadly impaired, the same cause has rendered easy the examination of the detailed structure of the bow, and has exposed the various materials which have been used in its composition. In fact, the cutting of a single transverse section across one of the limbs is all that has been necessary in the way of dissection.

In length the bow is about 57¾ inches, measured along the "belly" and following the curves. Measured in a straight line

from tip to tip, the length is about 53 inches. It is, in fact, markedly reflexed, *παλίντονος*, though to nothing like the same extent as many modern Asiatic composite bows. From the centre to the extremities of the "limbs" it tapers very gradually, the two ends being of slender proportions, the extremities curving backward rather abruptly. Near the centre of one of the "limbs" the girth measures a little less than 3 inches.

In the days when it was still new and ready for use, nothing of its structure could be seen, as it was completely enveloped in an external coating of *birch-bark* (Figs. 2 and 3), as is so frequently the case with the modern bows of North India and Persia; the greater part of this bark layer remains intact.

The materials used in the construction of this bow are:—1. wood (two kinds): 2. black horn; 3. sinews of animals; 4. birch-bark; 5. glue. Their positions are made clear in the diagram.

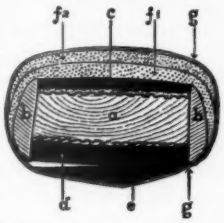
The central core (*a*) or "backbone," consists of a piece of wood, tapering towards the ends, which runs the whole length of the bow, and is flattened oblong in cross section. The wood is not very hard, but is "stringy" with a strongly marked grain, and is brownish-yellow in colour. The surfaces are roughly scored with grooves to give a hold to the glue. Against the edges of this core are glued side-strips (*b b*) of a harder brownish-red wood, with flattened inner and rounded outer surfaces. These strips also run the whole length of the bow, and are wider than the thickness of the central core, and, by thus overlapping its edges, make with it a kind of shallow, wide channel along each face. Along each of these channels lies a wide strip of dense black horn (*c* and *d*), probably of some kind of buffalo, extending to the extremities of the limbs. These strips exactly fill the channels, the strip along the back (*c*) being thinner than that along the belly (*d*), corresponding with the shallower channel. The inner faces of the horn strips are scored with slight grooves, in the same manner as are the central wooden core and side strips, to which they are firmly glued. Overlying the thicker horn strip is a second strip of the same material (*e*), and of nearly equal width, rather more than $\frac{1}{16}$-inch thick at the centre, and bevelled away to nothing at the edges. An obtuse angle is formed on the outside of this strip (as seen in section), and this produces a kind of low ridge along the belly of the bow in the central line (seen in Fig. 2). It is not to be supposed that horn could be obtained of sufficient length to run the whole length of the bow, so it is safe to suppose that the horn strips are in *pairs*, meeting at or near the centre, though without dissection their meeting point is not visible.

The wood on the other hand runs right through the handle, and so far as can be seen the central core runs in a single piece from end to end.

Overlying the thinner horn strip (*c*) which occupies the shallower channel along the back of the central core,[1] is a thick mass of longitudinally disposed sinews, taken probably from the neck or back of some ruminant, which have been very carefully prepared, and form a very homogeneous and dense layer, or rather layers, for the mass is built up of two layers (f^1 and f^2) of sinews, possibly more than two. The thickness of the mass is nearly $\frac{3}{16}$-inch near the centre of the bow, becoming reduced towards the ends, as is the case with the horn strips. This sinew "backing" is lapped round the edges of the bow, and encloses the two side strips of wood.

Near the ends of the bow sinews are wound transversely round the whole, so as to bind the parts firmly together, and enable them to withstand the great strain at these points.

Such then is the complex structure of this remarkable bow. Overlying the whole is the layer of birch-bark (*g*), of a rich brown-red colour, with very smooth and glossy, almost satiny, surface. It has been laid on in small rectangular pieces, each wound transversely round (not diagonally, as is so usual with modern Asiatic bows) until one edge meets and just overlaps the other. The adjacent pieces of bark join one another so as to leave no space between, and in this way they together form a continuous, weatherproof sheath from end to end, at the same time protecting the delicate structure of the bow, and hiding its complexity from view.



This bow differs in several respects from the ancient composite bow in the Berlin Museum, described by Dr. von Luschan. It is rather larger—53 inches, as against 45 inches, measured across the curve, and 57¾ inches as against 48½, measured along the curve. It is somewhat more reflexed. The shape, as seen in section, differs, being in the present bow inclined towards a pentagonal form, with the angles well rounded off, while in the Berlin bow the section at the centre of the handle is nearly

[1] The function of the horn strip (*c*), interposed between the wooden core and the mass of sinews, is not clear. Horn, as being compressible, is an excellent substance for the *belly* of a bow, which is subjected to a *crushing* stress, while the elastic sinews along the back are well adapted to resist the tensile strain thrown upon that part of the bow. The horn seems out of place on the back. At any rate it is most unusual to find horn in this position. It is the only instance of the kind which I have come across in the examination of scores of modern composite bows from various countries.

circular, and at about one-third of the distance along the limbs it is plano-convex, approaching the semi-circular. The disposition of the strips of wood forming the main portion of the bow, differs markedly in the two specimens, as may at once be seen on comparing Dr. von Luschan's sketches (or the plate illustrating Mr. Longman's paper) with the illustrations to this paper. A single deep, narrow, central groove runs along the whole length of the Berlin bow, sunk right through to the sinew mass, which forms the back of the bow. This groove of course was originally filled either with wood or horn, but in what manner, or in what proportion, cannot be ascertained, as the whole groove is now empty, and no clue to the nature of the substance or substances which once filled it, remains. The presence of horn as an important feature in the structure of the bow which I have described, lends probability, almost certainty, to the idea that this material, either partly, or entirely, filled the groove in the Berlin bow. This is rendered the more likely from the fact of the horn in my specimen having suffered severely from the white ants, whereas the wood is almost intact. The disappearance of the horn in the Berlin bow may perhaps be accounted for in the same way.

Although there are marked differences between these two ancient bows, there still can be little question as to their having both come originally from the same, or very nearly the same extra-Egyptian region. They are both utterly un-Egyptian in character; in their general composite structure, and in the fact of their being decidedly reflexed, they resemble one another, their differences being rather in matters of detail. Traces of what seems to have been a covering of birch-bark are to be seen in the Berlin bow, and in my specimen this bark envelope is beautifully preserved. Needless to say that *birch-bark* was a substance known to the Egyptians only as introduced from a more northern region. As viewed in profile, there is a striking resemblance between these two bows, in the gentle curves, and in the way in which the handle is set backward.

As we may with practical certainty assume that these bows were of foreign introduction into Egypt, it remains for us to ascertain as far as possible their exact *provenance*. The possibly Hittite or Assyrian origin of the Berlin bow has already been speculated upon by Dr. von Luschan and Mr. Longman, who draw attention to the resemblance borne by that bow to those represented in Hittite and Assyrian sculptures. Von Luschan suggests that this bow had been introduced into Egypt either by foreign mercenaries or as a spoil of war. The tomb in which it was found at Thebes has been referred by experts to the time of Ramesu II (XIX dynasty), or, according to Mr. Petrie, say from about 1275–1208 B.C.

Now there are strong reasons for supporting the theory of an Assyrian origin for the bow of the XXVI dynasty which I have described. It not only resembles closely the better representations of bows in Assyrian sculpture, in shape and in the curve assumed when drawn, and in the way in which the ends curve over backwards, but the date of the tomb in which it is said to have been discovered corresponds with the end of the period of the Assyrian occupancy of Egypt. Mr. Petrie informs me that the Assyrian conquest in the XXV dynasty was about 672 B.C., and lasted till the rise of the XXVI dynasty, which extended from about 664–525 B.C.

During their invasions and occupancy of Egypt, Assyrian weapons must necessarily have been numerous in the land, and it would be indeed remarkable if some should not have been preserved, even after the evacuation of the country by the invaders.[1] Why they came in some cases to be deposited in the native tombs, in company, as in the present instance, with other weapons of purely indigenous character, is uncertain, though this is not a matter of paramount importance. Such bows may have been valued trophies, or have been acquired in a variety of ways, and, in any case, their complex and beautiful structure must have favourably impressed a bow-using people like the Egyptians, who would have welcomed such weapons as interesting possessions, and may even in some instances have condescended to lay aside the native African single-stave bow, for the newly introduced and efficient composite bow. Whatever the reason of their having been deposited in Egyptian tombs may be, we must feel grateful for it, since such very perishable weapons probably owe their preservation to their careful interment.

If further evidence is required to prove an Assyrian origin for this bow, such is, I venture to think, supplied by the arrows which were found with it. I mentioned that with each of the bows found in the XXVI dynasty tomb, were several of the arrows which belonged to them. Just as the composite and alien bow differs from the characteristically Egyptian bow found in the same tomb, so do the arrows found with the former differ from those found with the latter. The arrows belonging to the Egyptian wooden bow are themselves in every way characteristically Egyptian in type, as is clear from the numerous examples preserved in museums and collections. They consist (Fig. 6) of a fairly stout shaft of reed, with foreshaft of wood tanged into it. To prevent splitting, the socket is whipped with fibres (possibly sinews), which are blackened

[1] Mr. Petrie, during his excavations this year, found a helmet of Assyrian type, together with a number of iron tools of entirely non-Egyptian character.

with a kind of bitumen. In the complete specimens the foreshaft is furnished with a head of chert (Figs. 6, 7), with wide transverse cutting edge ("chisel-ended" so-called), set in a composition. Arrows fitted with heads of this shape are frequently shown in ancient Egyptian representations of archery, and appear to have been much favoured, being, no doubt, adapted for causing great laceration and hæmorrhage without deep penetration. The nock at the butt end of the shaft is, it is important to notice, of a very simple and characteristic kind (Fig. 8), cut deeply in the reed end itself just beyond a node. There were three feathers (half feathers set edgewise), apparently about $2\frac{5}{8}$ inches to $2\frac{3}{4}$ inches long; the lines of glue which fixed them are very apparent in some of the arrows. Some of the arrows are clumsier and more roughly finished than the others, and seem to have been the work of another maker. The wings of the nocks in one set are narrow and pointed, in the other set broad and rounded (Figs. 8–9).

Turning to the "Assyrian" arrows, well-marked differences are seen. On the whole, these arrows are of finer make than the Egyptian set. As in the latter, the "Assyrian" arrows are composed of foreshaft and shaft (Fig. 10). The shafts are cut from more slender reeds than in the others, and vary from $21\frac{1}{4}$ inches to $22\frac{1}{2}$ inches in length. The foreshafts vary from $10\frac{1}{4}$ inches to $11\frac{5}{8}$ inches in length, and are carefully finished and smoothed; they are sharpened at the tips. Some are slightly tapered, others cylindrical almost to the tip, others again are slightly "barrelled." They are very neatly tanged into their shafts, the sockets having been whipped round with fine sinews (this binding has mostly perished, but its former presence is still manifest). Instead of the nock being cut in the reed end, a piece of hard wood, or horn in some cases, has been tanged into the butt (Fig. 11), and the nock is cut in this, a manifest improvement upon the Egyptian nock, which must always have been liable to split. Three of the arrows have this hard-wood plug completely preserved; in two it projects $\frac{1}{2}$ inch beyond the reed end, in the other barely over $\frac{1}{4}$ inch. All the arrows were furnished with it, but only traces remain in most, as, being apparently of horn, they have proved more perishable. The feathers (whether two or three in number, I am unable to say) were about 4 inches long, and set edgewise on the shafts, and were glued and bound with sinews. Traces of the feathers themselves remain on some of the arrows.

A reference to the Assyrian bas-reliefs in the British Museum, of the time of Assur-nasir-pal, c. 880 B.C., on which the arrows of the period are very clearly represented—shows at once striking resemblances to the arrows just described. The

presence of the nock-bearing hard plug of wood or horn is well indicated in many of the representations (Figs. 12, 13, 14). The long feathering is another kindred feature. The arrows shown in the sculptures have, it is true, bronze blades, mostly of leaf or lozenge shape, fitted to them (Figs. 15, 16), but even this characteristic is not altogether wanting in the present set of arrows. Together with those already described, and with the composite bow, was found a short wooden foreshaft, 5 inches long, tanged to fit a reed shaft, and with deep, narrow socket at the end, into which is fitted, by means of a long, narrow tang, a leaf-shaped blade of bronze (Fig. 17). The blade is $1\frac{1}{2}$ inches by $\frac{1}{16}$-inch, and is slightly "ogee" in section. The tang measures $1\frac{5}{16}$ inches long.

It may be fairly admitted that the evidence afforded by the arrows is much in favour of the Assyrian origin of this archer's outfit.

To sum up briefly, the evidence in favour of the theory of the Assyrian nationality of this bow with its arrows rests upon the following facts:—

1. The form, composite structure and materials of the bow are entirely non-Egyptian in character, and point clearly to a more northern origin. The shape corresponds with that of many bows represented in Assyrian sculpture.
2. The arrows found with the bow, and evidently belonging to it, are quite non-Egyptian in type, and correspond closely with arrows represented in Assyrian sculptures of a somewhat earlier date.
3. The date of the tomb (XXVI dynasty) corresponds with the end of the Assyrian invasion, which took place during the XXV dynasty, and lasted till the rise of the XXVI dynasty.

While it seems probable that this XXVI dynasty bow was a product of an invasion of Egypt *from* the North, it appears likely that the Rameside bow in the Berlin Museum may have been a relic of an Egyptian invasion *of* the North, obtained perhaps during the punitive expedition of Ramesu II into Northern Syria against the Khita, when he captured their capital, the island city of Kadesh on the Orontes. Syria, lying as it did between the two great and powerful kingdoms, was from very early times the meeting point of Babylonian and Egyptian influence and culture, and, if we should with Dr. von Luschan regard the Rameside bow as "Hittite" rather than Assyrian, we can still, from the geographical position and political relationships of the "Hittite" kingdom, account for the close resemblance to the Assyrian type of bow, and at the

same time for the presence of this alien type of bow in Egypt.

There is a difference of upwards of 600 years between the dates of these two bows, supposing that the dates assigned to them are correct, and we may perhaps regard the later bow as a modified and improved descendant of the earlier. This would give us two stages in the direct line of evolution of the early composite bow.

When it is considered that the kingdom of Assyria lay near to the southern limit of distribution of the composite bow, and was situated immediately adjacent to Media and Persia, the latter of which, in later times, became famous as the country in which the composite bow reached its highest perfection, it will be seen that any examples of Assyrian bows which may be discovered, must be interesting, not only *per se*, but also from the light which they may throw upon the early developmental history of the higher types of composite bow. It is greatly to be hoped that more material of this kind may be discovered.

It must be admitted that the two bows of composite structure hitherto found in Egypt are remarkable rather for their divergence from, than for their resemblance to the later Persian and other Asiatic composite bows; but we must remember that in ancient times the "Scythians" were perhaps the most celebrated archers, and that it was to them to whom Cyaxares, King of Media, applied for instruction in archery, and to teach his youths the art of using the bow.[1] During that king's reign, moreover, the Scythians conquered and occupied Media. Hence we can readily see that a northern type of bow may have been grafted upon that already familiar to the Medes and Persians, which would in all probability have been a type very similar to that of their neighbours the Assyrians. So that the "Assyrian" type may have lost its individuality through fusion with a superior and possibly Mongolian type of bow, and have been practically superseded by it. Be this as it may, the modern Persian and North Indian composite bows differ considerably in the details of structure from the modern Mongolian types, and seem to suggest a fusion of two or more types in early days.

In many respects these bows of "Assyrian" type bear a resemblance to the composite bows with *close* sinew backing of many modern tribes of N.W. America (Ossage, Modoc, etc.), which I have always maintained represent the survival of an *early phase* in the development of the higher types of composite bow.[2] The two ancient bows are certainly of more complex

[1] "ὥστε δε περὶ πολλοῦ ποιεόμενος αὐτοὺς, παῖδάς σφι παρέδωκε τὴν γλῶσσάν τε ἐκμαθέεω, καὶ τὴν τέχνην τῶν τόξων." Herodotus, "Hist.," I, 73.

[2] "Journ. Anthrop. Inst.," xix, 1890, pp. 226 and 244, and xxiv, p. 57.

construction and of finer workmanship, but in general type and in the single continuous curve which would be assumed when strung and drawn, the resemblance to N.W. American bows is manifest. These bows present features which we should naturally look for in composite bows of *early* type; for the composite bow must have originated in an attempt to strengthen the pre-existing self-bow, and such bows as the "Assyrian" and N.W. American seem to some extent to represent *transitional* types between the simply reinforced self-bow and the later composites, which show special modifications in structure, combined with the development of the well-known "Cupid's bow" curves.

It may be asked, to what extent does the "Assyrian" composite bow which I have described, throw light upon the structure of the very curious *angular* bow so frequently represented in the Assyrian sculptures? Mr. Longman, in his paper read before the Institute, raised the question of the possible structure of angular bows, and endeavoured to account for its very peculiar form. In the discussion which followed the paper, I was obliged to confess myself highly sceptical as regards there ever having existed actual bows of such a shape, at least for use in archery, and attributed the shape as represented to the perpetuation of an artist's error in the delineation, giving reasons in support of this view.[1] The examination of the present "Assyrian" bow certainly in no way confirms the straight-limbed, angular bow, as represented, as an actual weapon, as nothing in its structure is consistent with the fanciful and utterly unpractical shape shown in the sculptures. Unless we are to regard its peculiar delineation as a stereotyped artist's error, the angular bow of the Assyrians must, I venture to think, still remain a mystery if not a myth. At least we are not yet justified in admitting the angular bow as a *novum genus* or *nova species* in the category of bows. It has occurred to me as just possible that the rather abrupt backward setting of the handle, observable in both of the ancient composite bows, may have started the idea of an angular centre in the minds of Assyrian artists, themselves perhaps inexperienced in the essential points of an efficient bow, the great exaggeration of this peculiarity being due to their imaginative minds, and partly no doubt to the fact that straight lines could be executed with greater facility than curved ones. Once accepted as a pictograph representing a bow, there is no reason why the angular anomaly should not have continued to exist as such, even side by side with more realistic representations. Perhaps the com-

[1] "Journ. Anthrop. Inst.," xxiv, pp. 55, 56, also "Edinburgh Review," July, 1895, pp. 37, 38.

pletely developed (or degraded) angular bow was arrived at only by a series of *successive* copyings by one artist from another, a process which we know is all-powerful in the production of even purely unintentional variation in art designs.

In concluding, I may add that I am giving the bow with its arrows to the Oxford University Museum, as an addition to the fine series of composite bows collected by General Pitt-Rivers, which forms an important feature in the ethnographical collection presented by him to the University.

Description of Plates IX and X.

Fig. 1.—Side view of "Assyrian" bow, showing general shape, and *reflex* curves. Found in a XIIth Dynasty tomb at Thebes, Egypt.

Fig. 2.—Portion of the "belly" of the same bow showing the grooved inner core of wood (*a*), the two side strips (*b*, *b*), the low, central ridge, and the bark covering. *c.* ½ scale.

Fig. 3.—Portion of the "back" of the same, showing the bark layer overlying the sinew "backing" which is eaten away in places. *c.* ½ scale.

Fig. 4.—Transverse section cut through one limb of the bow at a point marked A . . . A in fig. 1 (for description of the section see woodcut in the text, p. 213). Actual size.

Fig. 5.—Egyptian bow of plain wood, found in the same tomb as the above.

Fig. 6.—Egyptian arrow, with reed shaft, wood foreshaft and stone head set in cement.

Fig. 7.—Foreshaft and flint head of another Egyptian arrow.

Fig. 8.—Butt of Egyptian arrow, showing nock cut in the reed end, and trace of the glue which held one of the feathers. Actual size.

Fig. 9.—Butt of another Egyptian arrow showing a different type of nock. Actual size.

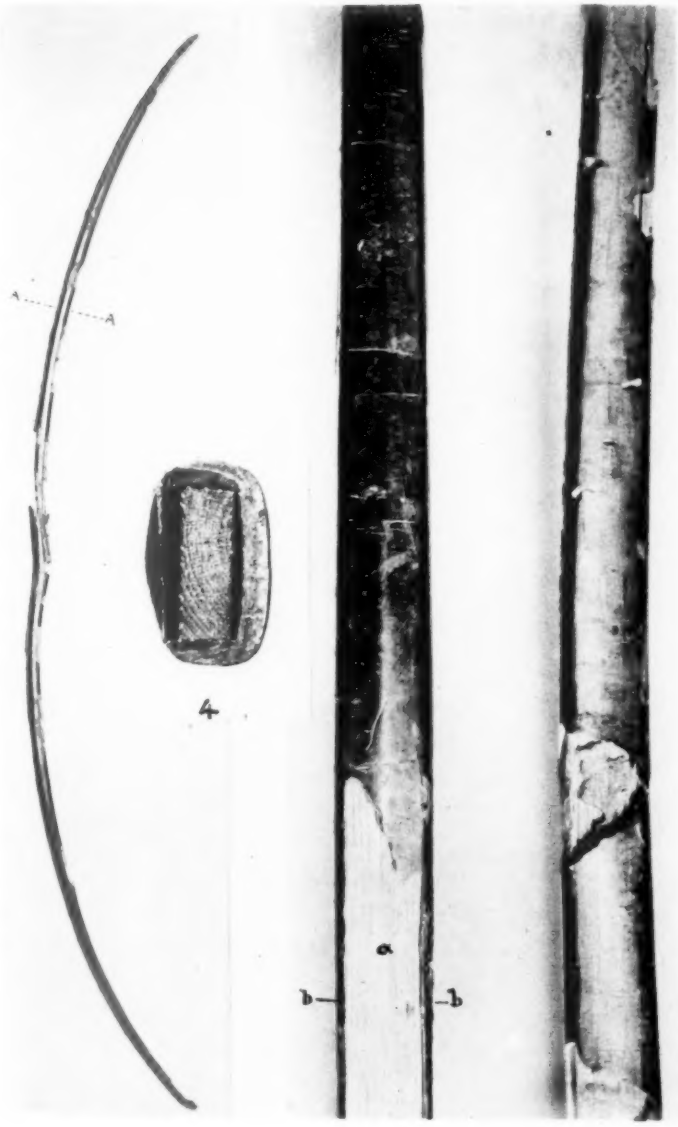
Fig. 10.—"Assyrian" arrow, with reed shaft, pointed wooden foreshaft, and nock-bearing hard wood plug. Found with the "Assyrian" bow.

Fig. 11.—Butt of "Assyrian" arrow, showing the hard wood plug in which the nock is cut. Actual size.

Figs. 12, 13, 14.—Butts of Assyrian arrows copied from sculptures of Assur Nazirpal, in the British Museum. Reduced in size.

Figs. 15, 16.—Heads (bronze bladed) of arrows on the same bas-reliefs. Much reduced.

Fig. 17.—Foreshaft of "Assyrian" arrow, with leaf-shaped bronze blade.



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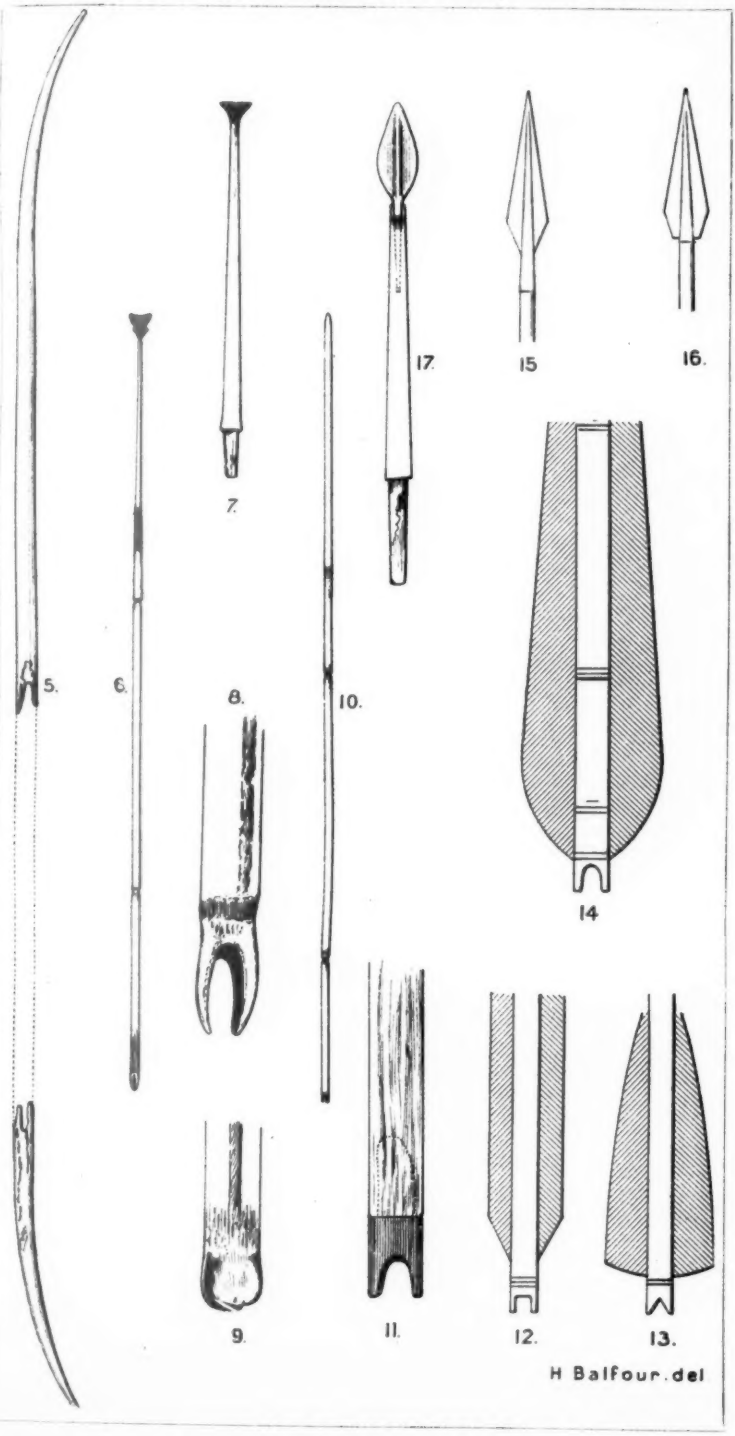
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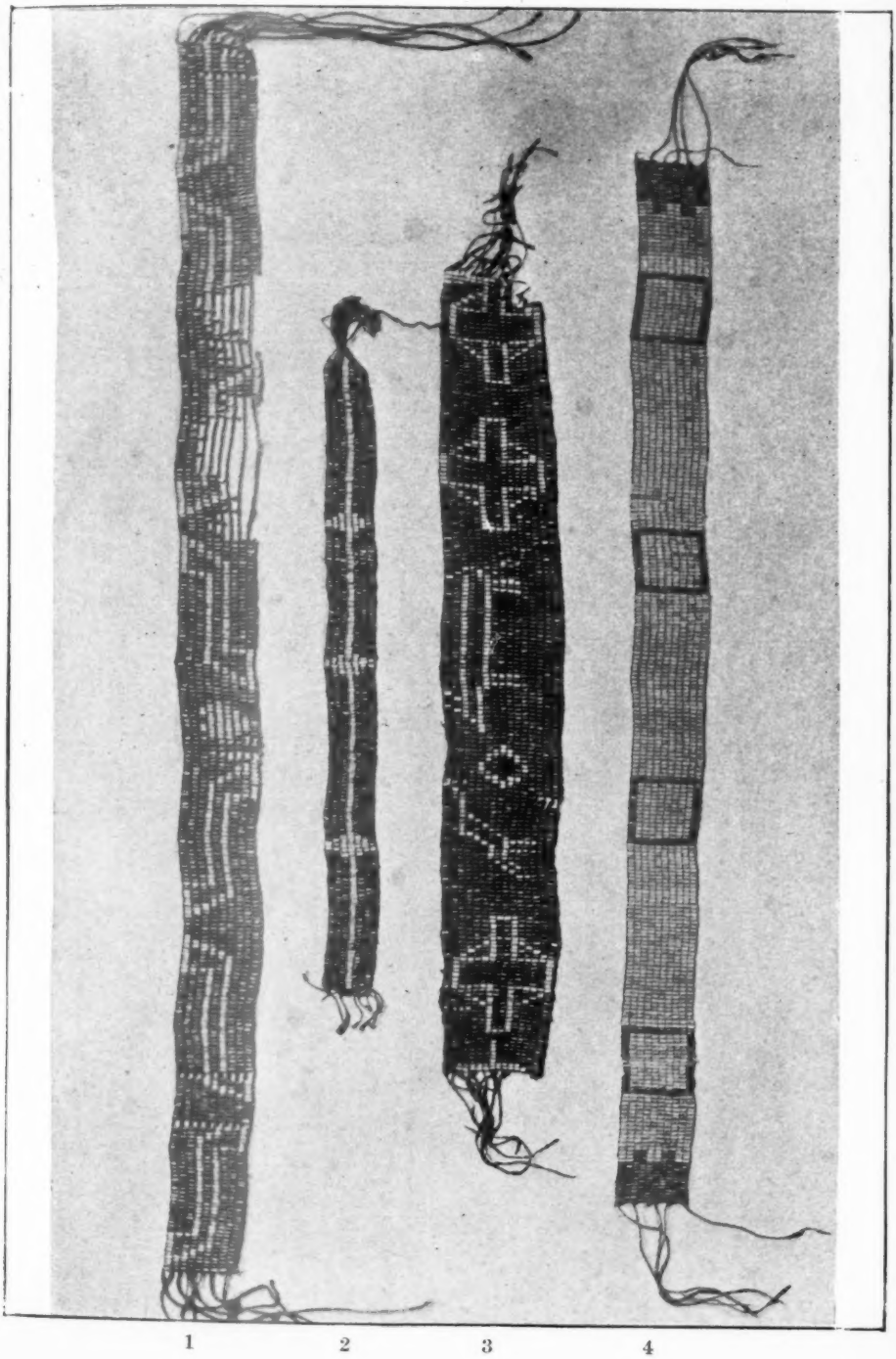

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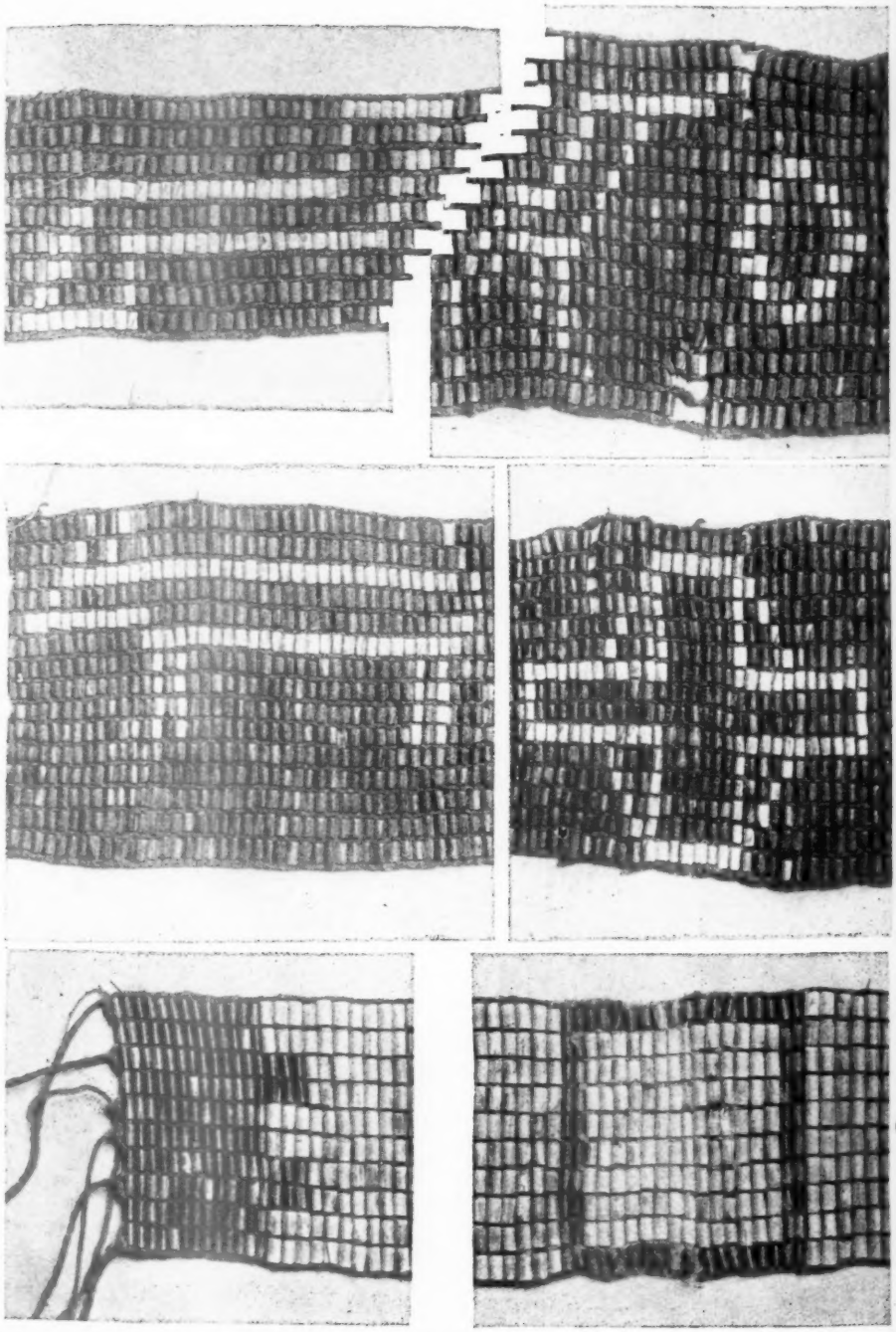
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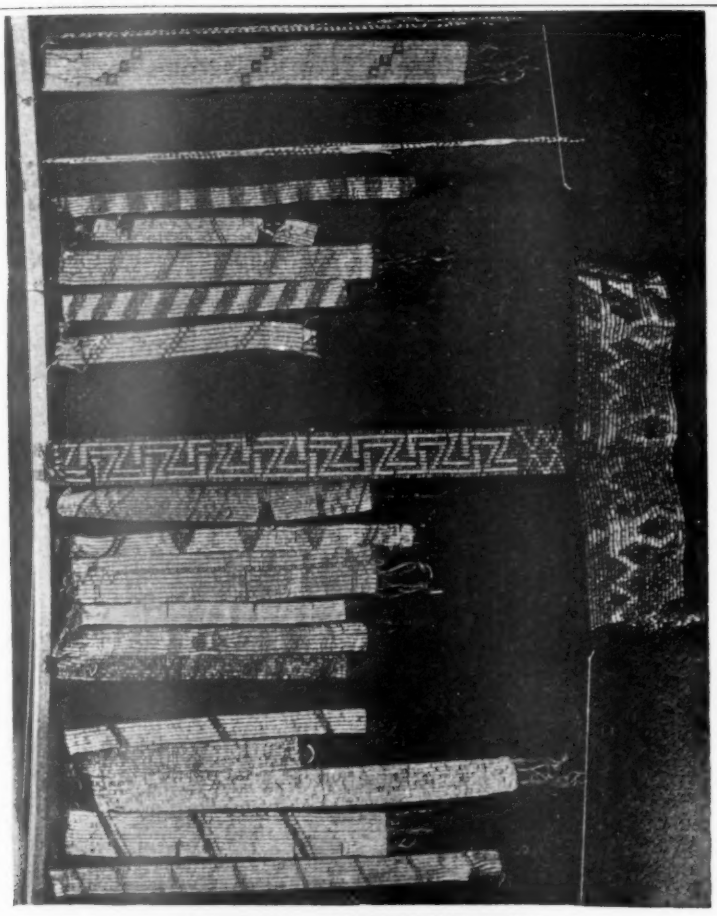

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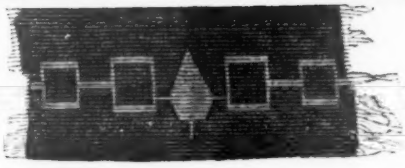

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NOVEMBER 24TH, 1896.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The elections of Mrs. R. F. WILKINS, R. BURNARD, A. KEITH, and H. WELD BLUNDELL as Fellows, and R. H. MATHEWS, as a Corresponding Fellow, were announced.

The following paper was read :—

"Ethnographical Notes in New Georgia." By Lieut. BOYLE J. SOMERVILLE, R.N. Illustrated by the Optical Lantern.

DECEMBER 8TH, 1896.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The election of Dr. R. M. CONNOLLY was announced.

The following paper was read by Prof. E. B. TYLOR, D.C.L., F.R.S.:—

FOUR HURON WAMPUM RECORDS: *A Study of Aboriginal American History and Mnemonic Symbols.* By HORATIO HALE, M.A. (Harvard), F.R.S., Canada. Author of Ethnography and Philology of the U.S. Exploring Expedition, the Iroquois Book of Rites, etc.

[WITH PLATES XI, XII, XIII, XIV.]

I.

THE HURON NATION.

Its Position among American Tribes—Claim to Pre-eminence—Early History—Hochelaga—Cartier's Visit—Use of Tobacco and Wampum—War with the Iroquois—Defeat of the Hurons and Retreat to the West—The Wendat—The Tobacco Nation—Visit of Champlain—His Disastrous Expedition—The Iroquois Confederacy—Hiawatha.

THE surviving members of the Huron nation, even in its present broken, dispersed, and half-extinct condition, still retain the memory of their ancient claim to the headship of all the aboriginal tribes of America north of Mexico. That there

was originally some good ground, in tradition and in character, for a claim of this sort, though not quite so extensive, must be admitted. The Hurons, or Wendat, as they should properly be styled, belonged to the important group, or linguistic stock, which is commonly known, from its principal branch, as the Iroquoian family, and which includes, besides the proper Huron and Iroquois nations, the Attiwendaronks (or neutral nation), the Eries, Andastes, Tuscaroras, and Cherokees, all once independent and powerful tribes, though some of them are now extinct. In the whole of Cis-Mexican North America, only two stocks surpassed the Iroquoian in population and extent of territory. These were the Algonkin-Lenâpé family (or as it is now scientifically named, the Algonquian stock), whose widely scattered tribes encompassed the more condensed Iroquoian nations in a vast circuit, which, beginning with the Abenakis, or Eastlanders, of the Gulf of St. Lawrence, extended northwestward in the Crees of Labrador and Hudson Bay, and the Ojibwas (or Chippewas) of Lake Superior, to the Blackfoot tribes of the Rocky Mountains, and thence circled south and east to the Arapahoes and Cheyennes of Kansas and Arkansas, and the Illinois, Shawnees, and Miamis of the Ohio plains, reaching the Atlantic again in the Powhatans of the Potomac, the Lenâpés of the Delaware, the Mohegans of the Hudson, and the Narraghansets, Massachusetts, and Penobscots of New England. The other equally widespread stock was the Athapascan or Tinneh family, whose northern tribes wander over the continent in the wide space between the Northern Algonquian and the Arctic Eskimos, while the southern branches—Umpquas, Hupas, Navahos, and Apaches—occupy large portions of Oregon, California, New Mexico, and Arizona. A third linguistic family of some note, which has been supposed, though incorrectly, to be allied to the Iroquoian—the Siouan (or Dakotan) of the Western Mississippi prairies, deserves notice from the fact that recent researches have found evidence of the former residence of some of its tribes near the Atlantic seaboard, in close contact with those of the Iroquoian and Algonquian stocks.

Among all these and other tribes of Northern America, the Iroquoians held an acknowledged pre-eminence in intellectual vigour and advanced traits of polity, which have won the admiration and the sometimes unwilling respect of almost all who have had occasion to treat of them—from the early Franciscan and Jesuit Missionaries to the most enlightened ethnologists of our day—from Sagard, Brebeuf and Charlevoix, to Gallatin, Parkman, and Brinton. Gallatin, in his "Synopsis of the Indian Tribes," notices the remarkable fact that while

the "Five Nations," or Iroquois proper, were found by Champlain, on his arrival in Canada, to be engaged in a deadly warfare with all the Algonquian tribes within their reach, the Hurons, another Iroquoian nation, "were the head and principal support of the Algonquian confederacy." "The extent of their influence and of the consideration in which they are held," he continues, "may be found in the fact that even the Delawares, who claimed to be the elder branch of the Lenâpé nation, recognised the superiority of the Hurons, whom to this day they call their uncles." The origin of this notable difference of political sentiment between the two main branches of the Huron-Iroquois people had not, when Gallatin wrote, been discovered. It will be found fully set forth in my paper on the "Fall of Hochelaga."

It will then be seen that in ancient times, before Cartier discovered and explored the St. Lawrence River, these two tribes, the Hurons and the Iroquois, dwelt together in friendly unison on the shores of that river, near the present site of Quebec. A quarrel arose, leading to the retreat of one of the contending parties to the southern side of the river. Their posterity, augmented perhaps by adherents from other refugees of Iroquoian stock, became at last the Five Confederate Tribes, or nations, who carried on, for many generations, a desperate warfare with their northern congeners and former friends, the Hurons—a warfare ending at last in the complete conquest and dispersion of the latter people. During the whole of this protracted struggle the Hurons remained, as they had been from the beginning, the friendly allies of the Algonquians, to whom, on the other hand, the Iroquois Confederates had become deadly enemies. A knowledge of these facts, which has been recently gained from the traditions of both branches of the Huron-Iroquois people, clears up many obscurities that have heretofore perplexed the writers who have dealt with their history. It is essential to the correct understanding of their wampum records.

We owe to the narrative of Cartier's voyages our earliest acquaintance with the Hurons, who were thus the first of North American Indians to become known to European visitors. In the autumn of 1635, Cartier with his little squadron of three small vessels, the largest not exceeding 120 tons, ascended the great stream which the natives knew as the river of Hochelaga, but which he christened the St. Lawrence. He found its shores above its great tributary, the Saguenay, occupied by sedentary tribes, whose language and customs, as recorded in his narrative, show them to have belonged to the Huron-Iroquois family. Two of their customs are particularly

deserving of note in connection with our present subject. These natives were much addicted to the use of tobacco. The natives were accustomed to lay up in summer a great store of its leaves, which were dried for the winter. Only the men used it. Every man carried at his neck a skin pouch containing a quantity of it, which he smoked in a pipe of stone or wood. This, they said, kept them healthy and warm, and they were never found without it. But the most highly valued of all their possessions was that which they called *esurgny*, an ornament made of beads, which they fashioned from shells found in the river. "These beads," says the writer, "they use as we do gold and silver, and deem them the most precious thing in the world." They used them, it seems, chiefly in the form of "chains" and "collars," or as English writers at a later day have been wont to style them, strings and belts. When Cartier, in the following year, treacherously seized at Stadaconé the chief of that town to convey him to France, his people, in the hope of redeeming him, presented to the captain "twenty-four collars of *esurgny*," which the writer repeats, "is the greatest treasure which they have in the world, for they prize it above gold and silver." The name *esurgny* is apparently an attempt to express in French orthography the Iroquois *ionni* (defined by Bruyas in his dictionary as "*collier de porcelaine*"), with the pronominal *es*, meaning "thy" prefixed. "Your wampum belts," cried the beseeching people, extending their precious ransom to the unrelenting kidnapper, secure behind the terrors of his artillery.[1]

The "kingdom of Hochelaga," as Cartier styles it, comprised, besides the fortified "city" of that name, the important town of Stadaconé (commonly known to its people as *Canada*, or "the town"), and eight or nine other towns along the great river. All these were at this time waging a desperate warfare against a people dwelling south of them, whom they knew as the Tondamani, a name in which some have thought to trace a corruption of Tsonontowané, the native appellation of the Senecas, who were the most powerful of the Iroquois nations, and were deemed by the Hurons their most determined and formidable enemies. This interpretation seems plausible enough. All the circumstances render it probable that Hochelaga, at the time of Cartier's visit, was tottering to its fall before the attacks

[1] As some question has arisen as to the nature, or rather the material, of this *esurgny*, I may mention that a recent communication with which I have been favoured by Sir J. William Dawson, who has made a careful study of the subject, gives the decisive information that "the only shell-beads found in the excavations on the site of Hochelaga, in riddling the kitchen-midden stuff through fine sieves, are small beads of the ordinary form, made apparently of the shells of a unio."

of the Confederate Iroquois tribes. After its overthrow, the vanquished Hurons, in retreating westward, seem to have taken two widely separate routes. One party of them, as related by the native historian, Peter Dooyentate Clarke, fled to the south-west under their great chief, who bore the title of Sastaretsi. Keeping at first near the St. Lawrence, they afterwards diverged northwardly, until they found what seemed a secure refuge among the Blue Mountains, in a nook of the Georgian Bay of Lake Huron.[1] In their new abode they were known, if not among themselves at least to other nations, as the Tionontaté, or "People beyond the Mountains," and also to the whites as the *Nation du Petun*, or the Tobacco Nation. They cultivated a choice description of tobacco, which they sold—"thus offering," as Parkman remarks, "an example extremely rare among Indians, of a tribe raising a crop for the market."[2] It seems highly probable that this nation comprised the direct descendants of the former inhabitants of the city of Hochelaga itself. Though not very numerous, they are held to be at the head of all the Huron-Iroquois people. According to their tradition, preserved by La Hontan, "the name of their leader, Sastaretsi, had been kept up by descent for seven or eight hundred years." Even after their expulsion by the Iroquois from the Blue Mountains they continued to hold, as Parkman writes, "a paramount influence among the western nations, and were, among these allies, according to Charlevoix, the soul of all councils.

The larger body of Hurons who had been the subjects or allies of Hochelaga seem, after the overthrow of this capital, to have migrated in a more northerly direction, following the Ottawa River, and thus gaining the aid of their Algonquian friends in beating off their Iroquois pursuers. Their final refuge was found in the fertile and inviting region between

[1] These mountains lie so far out of the ordinary routes of travel as to be little known even in western Ontario. For the following clear description of them I am indebted to Dr. George M. Dawson, C.M.G., Director of the Geological Survey of Canada:—"The Blue Mountains are a more than usually elevated part of the Niagara limestone escarpment, or ridge, which runs across Ontario and out in the promontory between Lake Huron and the Georgian Bay. The tract so termed is central in Collingwood township, extending north from about Osprey nearly to the lake shore. The highest part is about 1,800 feet above the sea. Several important streams rise from them and flow south."

[2] A probable etymology of the name "Iroquois" refers it to this source, see the "Iroquois Book of Rites," Appendix, Note A (p. 171):—"According to Bruyas, the word *garokwa* meant a pipe and also a piece of tobacco, and in its verbal form, "to smoke." In the indeterminate form the verb becomes *ierokwa*, which is certainly very near to Iroquois. It might be rendered "they who smoke," or "they who use tobacco," or briefly, "the tobacco people." The Iroquois were well known for their cultivation of this plant, of which they had a choice variety."

Lake Simcoe and the Georgian Bay, which is at this day one of the most attractive portions of the Province of Ontario. Their country was reckoned by them to be about two days' journey east of that of the Tobacco Nation, with whom they were destined to be again united in a common ruin. But, for a considerable time, they remained a separate community, a confederacy of five distinct tribes, similar in some respects to the famous "Iroquois League," though much looser in its organisation and less effective. Here, in 1615, they were found by Champlain, when he came to summon them for his disastrous expedition against the Iroquois. His first view of their country is thus described by Parkman in his "Pioneers of France in the New World":—"To the eye of Champlain, accustomed to the desolation he had left behind, it seemed a land of beauty and abundance. He reached at last a broad opening in the forest, with fields of maize, pumpkins ripening in the sun, patches of sunflowers, from the seeds of which the Indians made hair-oil, and, in the midst, the Huron town of Otonacha. In all essential points it resembled that which Cartier, eighty years before, had seen at Montreal; the same triple palisade of crossed and intersecting trunks, and the same long lodges of bark, each containing several families. Here, within an area of 30 or 40 miles, was the seat of one of the most remarkable savage communities on the continent. By the Indian standard it was a mighty nation; yet the entire Huron population did not exceed that of a third or fourth class American city."

The ill-advised attack of Champlain and his Huron allies upon the Iroquois Confederates, ending in defeat and flight, had most serious consequences, not only for the combatants directly concerned, but for the whole continent. It aroused the animosity of the Five United Nations against both Canada and the Hurons to the highest pitch, and brought on a long and deadly warfare which soon ruined the Huron nation, and in time so weakened their white allies as to lead finally to the conquest of Canada by the British. While the persistent energy and far-seeing sagacity of the united Iroquois tribes have been much admired and highly lauded, they have been at the same time severely condemned for cruelty, ferocity, and bloodthirstiness. Both the praise and the blame have in a large measure been awarded in error, merely because the grounds and results of their action have not been correctly understood. If they had remained as they were when they quarrelled with their Huron cousins and fled to the region south of the St. Lawrence, much that has been said of them would have been just, and much more would have been inappropriate. But in the meantime a remarkable

change had taken place in their character, a change which recalls that which is believed by historians to have been developed in the character of the Spartans under the institutions of Lycurgus, and the similar change which is known to have appeared in the character of the Arabians under the influence of the Mohammedan precepts. A great reformer had arisen, in the person of the Onondaga chief, Hiawatha, who, imbued with an overmastering idea, had inspired his people with a spirit of self-sacrifice, which stopped at no obstacle in the determination of carrying into effect their teacher's sublime purpose. This purpose was the establishment of universal peace. All who acceded to this object were to be heartily welcomed; all who refused and opposed were to be overborne by any means and compelled into acquiescence. When Gallatin wrote, in 1836, these facts and motives were unknown. It thus happened that while lauding highly the remarkable ability and "cultivated intelligence" of the Iroquois, he was led to rank them "among the worst of conquerors." "They conquered," he declared, "only to destroy, and it would seem, solely to gratify their instinct for blood." Nothing could be more unjust, or more contrary to the historical facts, when these are rightly understood. Impartial inquiry will show that in every instance when, after the League of Peace was established by Hiawatha, the Iroquois entered upon a war, it was begun in self-defence, and that as soon as their enemy's resistance ceased, slaughter ceased with it. At the close of the long warfare in which Champlain and his Hurons and Algonquian friends took part, great numbers of Ojibwas entered into friendly alliance with the Iroquois, great numbers of other Algonquians—Delawares, Mohigans, and Conoys—remained as protected tribute-rendering dependents; and thousands of surviving Hurons, Attiwendaronks, Eries, and other conquered peoples, had been incorporated with the nations of the League, while no less than four friendly nations, the Tuscaroras, Tutelos, Nanticokes, and a branch of the Delawares, had been, at their own request, admitted as members of the League. In view of their magnanimous policy, exhibited in thus sparing all who submitted, and welcoming all who wished to join them, the Iroquois Confederates have been styled by a well-informed and most intelligent writer, Governor De Witt Clinton, "the Romans of the West." For other facts relating to this subject, I must refer to my papers, of which the titles are here given.

II.

LATER HISTORY OF THE HURONS.

Final Defeat and Dispersal—Some Return to Quebec—New Lorette—Two Towns join the Iroquois and receive Liberal Treatment—The Tobacco Nation Flee to Lake Superior—Return to Michigan—Settle near Detroit—Alliance with Algonquian Tribes—Emigration to the South-west—Wyandot Reservation—Anderdon Reserve—Present Condition.

The story of the fortunes which befel the Hurons after their final defeat is instructive. While some of them took refuge among the Eries, Andastes, and other yet unconquered tribes of the Huron-Iroquois stock, several hundreds of Christian converts fled eastward to the ancient abode, near Quebec, from which their forefathers had been driven, a century before, by their Iroquois enemies. There, at what is known as New Lorette, their descendants remain to this day, a half-caste people, French in complexion, language and religion, but Indian in habits and character, a favourite study of travellers. At the same time, two entire towns of the Hurons adopted what would have seemed a desperate expedient, if they had not known that the loudly proclaimed clemency of their conquerors was not a snare, but a settled part of their constitutional policy. They determined to solicit an unconditional admission into the Seneca nation, the most powerful and most persistent of their enemies. Their offer was at once accepted, and on the most liberal terms. They were not scattered as captives among their conquerors, but were allowed to form a town by themselves, though in conjunction with some other refugees who had been previously admitted on similar terms of grace. "Here," writes the Missionary Ragueneau, in the Relation of 1651, "they are now living as quietly as if they had never known war." Nineteen years later, the Missionary Fremin found them still dwelling peaceably in their town, Gandougaraé, on friendly terms alike with their fellow refugees and their Iroquois conquerors, and preserving with fervent devotion the Christian faith which they had accepted before their change of abode, and the profession of which, instead of occasioning displeasure, had gained them respect among the surrounding heathen. Thus, according to the testimony of the missionaries themselves, the Iroquois, whom their earlier reports depict as the most implacable and ferocious of enemies, had become, under the institutions of Hiawatha, the most merciful and generous of conquerors.

The people of Sastaretsi disclaimed to adopt either expe-

dient. They would neither seek shelter under the cannon of Quebec, nor accept the mercy of their hereditary enemies. They had, for a full century, since their flight from Hochelaga, dwelt in proud isolation in their mountain retreat. It was only about ten years before the final dispersion of the Wendat tribes that they had consented to join them, and make the sixth member of their confederacy, in the struggle against the common enemy. The name of Wendat (pronounced as if spelt in English *Waindat*), which they thus assumed, was for them hardly an exact designation, though, under the form of Wyandot, it became the appellation by which they were henceforth to be generally known. It signifies literally "people of one speech," being compounded, Indian fashion, from the words *Wenda*, language, and the radical portion (*at*) of *skat*, one. But careful inquiries, made during two visits to the survivors of this highly conservative people, showed that their language differed in some respects very decidedly from that of the proper Wendat tribes, and had preserved, in especial, one remarkable relic of the original Hochelagan speech which the others had lost. This was the labial articulation *m*, which has disappeared from every other Huron-Iroquois dialect, except that of the equally conservative Cherokees.[1] While accepting the name of Wendat, the descendants of the Tionontaté people retain to the present day this and other relics of their ancient tongue. Their spirit of haughty independence remained unbroken. Welcoming all the members of the other Huron bands who chose to claim refuge among them, they betook themselves to their canoes, and sought at first in Michigan, and afterwards in the westernmost recesses of Lake Superior, an asylum from their persistent enemies. Their farthest flight brought them to the country of the suspicious and quarrelsome Sioux, the hereditary enemies of the Hurons' Ojibwa allies. From this uncomfortable neighbourhood they turned back, and gradually made their way eastward towards the vicinity of their former home. They settled for a time in or near the island of Michilimackinac, and finally fixed upon a pleasant abode, on both sides of the Detroit River, in the midst of their Algonquian friends, the Ojibwas, Ottawas, and others, and under the protection of the newly established French fort, Pontchartrain. Here, in the wars which prevailed among their successive guardians, the French, English, and revolted colonists, and through the abortive conspiracy of Pontiac, they underwent many vicissitudes, but managed to retain their lands and their highly prized autonomy. Mean-

[1] See on this point fuller particulars in Hale's "Indian Migrations as evidenced by Language," in "American Antiquaries," 1883.

while their numbers had dwindled, and by the year 1840 had become reduced to about a thousand, of whom less than two hundred remained in Canada West, the rest being scattered in several bands through the States of Michigan and Ohio. Shortly afterwards, on the invitation of the American Government, the majority of the nation, some eight hundred persons, decided to remove to the south-west, at first in Kansas, and ultimately to the Indian Territory. Here the remnant, reduced by the sufferings and illness which invariably accompany an Indian migration, to less than half their original number, now reside. The population of their "Wyandot Reservation," of 21,400 acres, was in 1889, according to the official returns, only 279 persons; but these were, it is evident, a civilized people, all "wearing citizens' dress," nearly all "able to read," possessing three church buildings, and reporting 120 church members. They had 9,000 acres of land fenced, on which they gathered during the year 25,000 bushels of Indian corn, 2,000 bushels of wheat, and 750 tons of hay, with other crops, and pastured 250 horses, 800 cattle, and 500 sheep. Those who remained in their small Canadian tract of 7,700 acres, known as the "Anderdon Reserve," near Amherstburg, on the Detroit River, gave even better evidence of progress. I visited them twice, in 1872 and 1874, and found them living in a comfortable style, very like that of their white neighbours, with whom they mingled freely, evincing no inferiority in intelligence or character. They numbered then only about sixty. The best evidence of their progress and prosperity is found in the fact that in 1884 their number had increased to eighty-eight, and nearly the whole of them had ceased to be "Indians under tutelage." According to the Government Report of that year, the large majority had been enfranchised during the previous year. "Having served the term of probation required by law, they had received letters patent, conveying to them in fee simple the lands individually assigned to themselves and their families." Thus the once proud and powerful Huron people, whose ancestors welcomed Cartier, and faithfully sustained Champlain and the French colonists in their wars with the Iroquois and the English, more than three hundred years ago, have in our day shrunk to three insignificant and widely scattered communities, numbering altogether less than seven hundred members, but still retaining everywhere the indomitable spirit of independence and self-reliance which makes them, next to their near Iroquoian kindred (unless we should also perhaps except their more distant Cherokee congeners), the most creditable representatives of the American aboriginal race.

During my visits to the Anderdon Reserve, I received from the two leading members of the band, Joseph White, the Chief, and Alexander Clarke, the Government Interpreter, and also on one occasion from Alexander's brother, Peter Clarke, the author of the "Origin and Traditional History of the Wyandotts," who happened to be there on a visit to the Reserve from his home in the U.S. Indian Territory, much information concerning the language, traditions, and customs of their people. All these were, like most of their tribesmen, persons of half-blood, "Mr. White," as he was commonly called, being in part of French origin, and the two Clarkes being the sons of an English military officer who had settled in Canada and taken a Wyandot wife. All had had some schooling, but had been brought up among their Indian kindred, and were fully imbued with Indian beliefs and sentiments. Each had his Indian name, given by his native kindred, with no more special reference to the bearer than the ordinary names of white children. The chief was named *Mandorong*, having the whimsically inappropriate meaning, for a man of his frank and kindly disposition, of "we are unwilling." The tall and stalwart interpreter might, no doubt, have wielded with effect the "war-club" (*chehté*), which he claimed as his name. The meaning of his brother's native name, Dooyentate (which appears on the title-page of his book), I omitted to obtain. The accounts which I received from them of the primitive religious beliefs of their people agreed precisely with those related in the earliest missionary narratives, especially those of the Franciscan Sagard, and the Jesuits Brebeuf and Ragueneau. Some folk-stories, apparently of later origin, harmonized with them: while still others bore marks of foreign and in some cases of missionary origin. A few of these stories have been published in the "American Journal of Folk-Lore." The most important historical tradition, derived in the first instance from Chief Mandorong, and afterwards confirmed in its main particulars by Peter Clarke's History, was an unexpected revelation, which is embodied in my paper, "The Fall of Hochelaga."

III.

THE HURON WAMPUM RECORDS.

Their Number and History—Partition at Division of Tribe—Manufacture and Use of Wampum—Attempts to Counterfeit—Difference between Early and Recent Beads.

Of native records, in the form of wampum belts, the Wyandots had a large store. The chief, in speaking of this, as he remembered it before the division of the tribe, affirmed

that there were belts enough, if spread out, to cover the floor of the room in which we sat,—a farm-house parlour about 15 feet square. Clarke makes special mention of them in his history, as contained in a large trunk, and as the object of peculiar solicitude. During the last decade of the eighteenth century they were placed in charge of a Huron chief, named Peter Brown, who was of purely English origin. He had been carried off by a Huron marauding party from a frontier settlement of Virginia, "on his way to school," at the age of eight years. He was brought to Michigan, adopted by a Wyandot family, and when he grew up, married a Wyandot woman, whom Clarke affirms to have been his own maternal grandmother. Thus we learn that Clarke's mother had the attractions of an English half-caste, with doubtless some knowledge of English speech and of civilised habits, to captivate her military lover and husband. The story introduces into our history an element of romance which novel writers have been fond of dealing with, and of which the real life of the last century in America presented many examples.

"About this time," Clarke tells us, "the king, or head-chief, of the Wyandotts, Sut-staw-ra-tse [Sastaretsi] called a meeting at the house of Chief Adam Brown, who had charge of the archives, which consisted of wampum belts, parchments, &c., contained in a large trunk. One by one they were brought out and shown to the assembled chiefs and warriors. Chief Brown wrote on a piece of paper, and tacked it to each wampum belt, designating the compact or treaty it represented, after it had been explained from memory by the chiefs appointed for that purpose. There sat before them their venerable king, in whose head were stored the hidden contents of each wampum-belt, listening to the rehearsal, and occasionally correcting the speaker and putting him on the right track whenever he deviated." "The head-chief who presided on this occasion for the last time," continues the historian, "was the last lineal descendant of his race of pure Wyandot blood. His lamp of life went out at the close of this decade—between the years 1790 and 1801. None can now be found among the remnant of his nation but what are either mixed with the whites or with Indian blood of other tribes."

What became of these records was explained to me by Chief White, whose explanation was fully confirmed by Clarke's History, and is thus recorded in my journal:—"When the majority of the people removed to the south-west, they demanded to have the belts, as these might be a safeguard to them. Some of these belts recorded treaties of alliance or of peace with other tribes which were now residing in that region,

and it might be of great importance for the Wyandots to be able to produce and refer to them. The justice of this claim was admitted, and they were allowed to have the greater part of the belts. They left those which related to the title of the Indian lands in Canada, to the adoption of the Christian religion, and a few others." The chief did not clearly remember, with regard to all the belts he had, what precise event each was intended to commemorate. He said that the belts which he knew best were those which had been taken away. He had often heard them "read," in former times, by the old chiefs; but of course, of late years, since the majority of the people went away, the remaining belts have been little but useless lumber. The written explanations attached to them by Chief Brown have disappeared. It may be added that, in the Indian estimate, the only documentary value of the wampum record is its actual present utility as evidence of a subsisting treaty or land-right. To any merely archæological purpose which it may serve they are entirely indifferent. The chief said that he had some belts which were his private property, and which he could sell to me. I inferred that they were belts which had ceased to be of practical use, and which the former wampum-keepers, in accordance with tribal usage, had left at his disposal.

The four belts which I obtained from him in my different visits, and which are now to be described, were such as had thus ceased to be of use as political documents, while they yet remain records of the highest historical and archæological interest (see Plate XI). They belong, as appears by various evidences, to two distinct eras and categories. Three of them date back to the era of Champlain and the Jesuit Missions, and refer to events of signal importance, which occurred near the close of that epoch. The fourth belongs to the later period of the return of the Hurons to the east, and their settlement near Detroit under the protection of the French, about the beginning of the eighteenth century. The external difference between the two classes of belts is striking at the first glance. The older belts are entirely of native make; the later one is formed of similar materials, which have been put together by Indian hands, but the shell-beads and perhaps in part the strings which unite them have been procured from white men. In the older belts there is no uniformity in the size of the beads, some of them being twice as large as others. It is evident that they were made by hand, a work to which only Indian patience could be equal; while the later beads of nearly uniform size, were as evidently wrought by a lathe. It is a curious fact that in the space of less than two centuries which has elapsed since the

Indians ceased to manufacture wampum, the knowledge not merely of their forefathers' mode of making it, but of the fact that it was an article of native workmanship, has in some tribes been lost. Important national events in their past history, such as wars and migrations, are vividly recalled, but minor matters have faded from memory. To my great surprise, the Wyandot historian, Peter Clarke, in our first conversation, assured me positively that the Indians had never made wampum beads, and seemed insulted when I ventured to correct him. I afterwards found the reason of his sensitiveness in the fact that he had recorded his opinion in a footnote of his history, which reads as follows :—"Wampum is manufactured from a species of sea-shell, expressly for Indians, by Europeans, perforated (lengthwise) tubes, about $\frac{1}{8}$-inch in diameter and $\frac{1}{2}$-inch in length, and of a mixed light and dark-purple colour. The tubes are fastened together with strong thread or ligament into belts, from 5 to 7 inches in width, and from 24 to 40 inches in length." Unfortunately, I had not at hand a volume of Sagard's "Journey to the Huron Country," with which I might have instructed and perhaps soothed and gratified my too sensitive disputant. I could have shown him the passage in which the good Franciscan Missionary, in his edition of 1632 (just two hundred years earlier than Clarke's publication), describes the process of making these *pourcelaines*, as he styles the wampum beads. "They are made," he says, "of the substance (*des os*) of those great sea-shells which are called conchs (*vignols*), resembling snails. These they cut into small pieces, then polish them on a stone, perforate them, and make of them collars and armlets. It is a work of great pains and labour, owing to the hardness of their substance, which is quite a different thing from our ivory. This they value little beside their porcelain, which is handsomer and whiter." It is a somewhat amusing reflection that one of the ingenious Hurons whom Sagard saw engaged in the wampum-making process, which he so pithily describes, may have been an ancestor of the sceptical Clarke himself.

It is proper to notice that though many attempts were made to counterfeit the wampum, by Dutch and English colonists, soon after their settlement on the Atlantic sea-board, these attempts were for a long period only partially successful. Much information on this subject is collected by Mr. W. H. Holmes in his excellent monograph on "Art in shell of the Ancient Americans," published in the "Second Annual Report of the American Bureau of Ethnology." Thus, Thomas Morton, of Massachusetts, writing in 1630 of the New England Indians and their wampum beads, which then "passed current as money

in all parts of New England, from one end of the coast to the other," tells us that though some of the colonists "had endeavoured to make the same beads, of the same kind of shells, yet none had ever yet attained any good success, as the salvages have found a great difference to be in the one and the other, and have known the counterfeit beads from those of their own making and doe slight them." Nearly a century later, the surveyor Lawson, of Carolina, describing the same money, tells us that "the shells of which it is made are very large and hard, so that they are very difficult to cut. Some English smiths," he adds, "have tried to drill this sort of shell-money, and thereby thought to get an advantage; but it proved so hard that nothing could be gained." The introduction of the machine drill could not have made much difference in this respect, as each bead must still be fashioned separately by a white workman whose time was much more valuable than that of an Indian. That which finally gave the English beads the advantage was not the superiority or the cheapness of the workmanship, but the destruction of the Indian workmen. The quarter of a century which followed the publication of Lawson's book, from 1714 to 1740, saw the extermination of most of the Carolina tribes and a great decline in the number of all the Northern Indians. It was during this period that the wampum making industry seems to have ceased among them, and the use of machine-made beads to have become so universal that some respectable writers of a later period, such as Loskiel and Hutchinson, who on points within their own knowledge are of good authority, were led to doubt whether the Indians ever made many of these beads. A reference to the older writers and the testimony of the mounds puts this point beyond question.

The practice of making and using wampum belts and strings of the purchased beads still survived for a century longer. The work, as a general rule, was left to be done by the women, and the method remained the same as it was in the oldest historical times, though there was some change in the textile materials. The strings of native hemp, bark filaments, deerskin, and sinew, on which the beads had been strung and interwoven, gave place to foreign twine, including silken thread. In fact, these materials, which had been obtained by the Indians in their traffic, are found to have been used in some of their earlier belts. The method of weaving these belts was, though simple when once understood, a highly ingenious process, requiring much care and skill. The process cannot be better described than in the words of Mr. L. H. Morgan, one of the most careful and trustworthy of observers. Supposing a belt of seven rows, which is the most common width, to be designed, "eight strands

or cords of bark thread," he tells us, "are first twisted from filaments of slippery elm, of the requisite length and size; after which they are passed through a strip of deerskin to separate them at equal distances from each other in parallel lines. A piece of splint is then sprung in the form of a bow, to which each end of the several strings is secured, like warp threads in a weaving machine." The distance apart at which these parallel strings are held, it should be understood, is the average length of a wampum bead. "Seven beads, these making the intended width of the belt, are then run upon a thread by means of a needle, and are passed under the cords at right angles, so as to bring one bead lengthwise between each cord and the one next in position. The thread is then passed back again along the upper side of the cords and again through each of the beads; so that each bead is held firmly in its place by means of two threads, one passing under and one above the cords. This process is continued until the belt reaches its intended length, when the ends of the cords are tied, the ends of the belt covered and afterwards trimmed with ribbons. In ancient times both the cords and the thread were of sinew."

Most belts have devices interwoven, forming intelligible mnemonic pictures. These pictures are made by coloured beads, inserted as the belt proceeds, sometimes dark on a white ground, and sometimes white on a dark ground. To produce these pictures, with such intractable substances, requires in the weavers a degree of constant care and skill comparable only to that displayed in the making of gobelin tapestry.

IV.

THE FOUR HISTORICAL HURON BELTS.

"The Double-Calumet Treaty Belt"—"The Peace-Path Belt"—"The Jesuit Missionary Belt"—"The Four-Nations Alliance Belt"—The Several Symbols and the Treaties supposed to be Recorded.

1. The four Huron belts, which form the main subject of this memoir, may now be described, in the order partly of their presumed age, and partly of their importance. (See Plate XI, where they are numbered as in text, details being enlarged in Plate XII.) One of the oldest of them, and certainly the most important among them, is that which may be styled "*The Double Calumet Treaty Belt.*" This, which must have been, when new, a truly imposing construction, is probably more than two and a half centuries old. It is nine beads in width, and is still over 3 feet and 9 inches long, though it has probably lost about a foot of its original length. It displays on a

dark ground of the costly purple wampum, the rather singular composite device of a council-hearth in the centre—or what was probably the centre—of the original belt, flanked on one side by four and on the other by three double-calumets (Plate XII, 1), or, in other words, double-headed peace-pipes, each possessing a bowl at each end. This, it need not be said, is, as a pipe for actual use, an impossible article. It is a creation of what may be called the heraldic imagination, like the Austrian two-headed eagle, or the English unicorn. Of its significance there is no question. Concerning the history of the belt, Chief Mandorong could only tell me that it was a peace-belt, representing an important treaty or alliance of ancient times. This is certainly as much as he could be reasonably expected to know of so antique a record, which, from its lack of practical interest, had long ceased to be produced and explained in the tribal council. Fortunately, the Jesuit "Relations" give us ample information concerning what we may reasonably presume to have been the time and the occasion of the treaty indicated by this belt. The letter of Father Lalemant to his superior at Quebec, narrating the events of 1639 and the following year (chapter X, page 95 of the Quebec edition of 1858), contains the following paragraphs:—"The Khionontateronon (Tionontaté people), who are called the Tobacco Nation, on account of the abundance of that herb which is grown in their country, are distant from the country of the Hurons, whose language they speak, some twelve or fifteen leagues to the westward. They have formerly had cruel wars against each other, but are now on very good terms, and have lately renewed their alliance, and made a new confederation, against some other nations, their common enemies."

The only people from whom the Tionontaté nation, in their isolated position, can have received such an important pledge of alliance, were their numerous and powerful Huron neighbours. The device may be deemed significant. The double calumets seem to have been originally eight, one having been lost from one end, as another has partly disappeared from the other extremity. It was the habit of the modern Indians, when wampum beads were needed for messages, presents, or sacrifices, to have recourse to the ancient and, so to speak, obsolete belts, which were thus gradually pillaged. It seems likely that the eight calumets had reference to the eight clans or *gentes*, who composed the Huron people, and were found in different proportions in all the tribes. These clans, called by the Algonquians *totems*, all bore the names of certain animals, with which the Indians held themselves to be mythologically connected—the bear, wolf, deer, porcupine, snake, hawk, large tortoise, and

small tortoise. Each clan was more numerous in some towns than in others, as it was natural that near kindreds should cluster together. Thus the missionary Brebeuf speaks of "the nation of the bears," among whom he resided. But all the *gentes* were closely connected by intermarriages, and a belt including them all, accompanied by a council hearth, would be understood to express the unanimous will of the Huron people. It is true that the five Iroquois nations had also eight clans, though in part differently named from the Huron clan. But it is impossible to suppose that their inveterate enemies of the Tionontaté nation can have combined in bestowing upon the latter such a pledge of amity. The belt, in its first estate, must have contained not less than three thousand beads, and must have been deemed not only an impressive record, but also a magnificent gift. It seems highly probable that the special device of the double calumet had a complimentary reference to the title and repute, on which the recipients doubtless prided themselves, of "The Tobacco Nation."

The expressions used by Lalemant in the passage quoted, "renewed their alliance," and "made a new confederation," are deserving of notice, as showing that the Hochelagan form of government, to which these expressions evidently referred, was not, as Cartier supposed, a "kingdom," but simply a confederacy, doubtless of the usual Iroquoian stamp.

2. *The "Peace-Path Belt."*—This name distinguishes a smaller belt, of which only the memory remains that it was received at the conclusion of a treaty of peace, made in ancient times between the Tionontaté nation and a people possessing three council-fires. This people can hardly have been any other than the Huron confederacy. That League did indeed include five nations, but two of them were comparatively insignificant, having each but one town, while the remaining twenty-two towns and villages of the Wendat were divided among the three larger nations. It is known from the Jesuit relations that these three nations were accustomed to act in council on behalf of the whole people. This was done in the famous nocturnal council of August, 1637, when a great assembly of the chiefs of the whole country was held to determine upon a war, and at the same time to decide the fate of the missionaries, who were accused of causing by their sorceries the pestilence which was then ravaging the Huron nations. This council, we are told by the missionary Le Mercier, in his vivid description of it (Relation of 1638, chapter 2), "was composed of three nations, namely, that of the Bears, our first hosts, who number fourteen towns and villages, and whose chiefs held one side of the cabin, having us among them, while

the opposite side was held by the two other nations, numbering each four well-peopled towns." According to the custom of the country, the missionaries presented to the council a gift of three or four hundred wampum beads, as an evidence of their concern for the general welfare. When their own case came up, they defended themselves against their accusers with a force of argument and appeal which secured them from immediate condemnation; and soon greater public dangers from the hostile Iroquois had alarmed the Hurons, and induced them to seek the advice and assistance of the missionaries in their own mortal peril. It was at this time, apparently, that the desire of resuming their ancient amity and alliance with their neighbours of the Tobacco Nation had arisen, of which the first evidences were the two belts that have now been described. The smaller belt would be first presented as an overture of lasting peace from the three leading Wendat nations, while the larger belt would follow when the alliance was completed.

3. "*The Jesuit Missionary Belt.*"—The belt which bears this name is probably, if judged from its size, its purport, and its history, the most remarkable and memorable wampum-belt in existence. It can only be compared in all these respects with the famous "Penn Wampum belt," which in some points it decidedly surpasses. What my informant, Chief Mandorong, knew or believed of it was that it commemorated the acceptance by the Hurons of the Christian religion, in the form in which it was presented to them by the Jesuit missionaries. The belt must have been made by Indians under missionary instructions, and in all probability in the Huron country; but of the precise occasion and circumstances of its presentation to his forefathers, and their acceptance, the chief knew nothing. The missionary reports seem to supply us with sufficient evidence on these points. In the letter of Father Lalemant, from which the paragraph relating to the treaty with the Tionontaté people has been quoted, we have a lively narrative of the trials and sufferings which befel the two missionaries, Fathers Garnier and Jogues, to whom the duty of commencing this mission to the Tobacco Nation was assigned. The season was winter and the ground was covered with snow, on which they had sometimes to make their rude couches of pine-branches for the night's sleep. The pestilence was raging, and the hostile rumours against the missionaries, as sorcerers who had brought it into the country, excited against them a frenzy of terror. Almost every door was closed against them; and sometimes when they had been reluctantly admitted, they were ordered out in the middle of the night by their terror-stricken host. The women cried out against them in horror, and the

terrified children fled from them screaming. They were able to baptize a few persons whom they found at the point of death, and finally returned safely from their venturous tour, half famished, but triumphant and hopeful.

This was in 1639. Ten years later, in 1649, we find the Tobacco Nation occupied by two missions, each under the charge of two missionaries. It was probably during this decade, and at the commencement of what were deemed the permanent missions, that the belt in question was presented by the missionaries. It was accepted by the people, not precisely as an evidence of the adoption of the new religion offered to them, but as an indication of their willingness to listen to the missionary teachings. This we may infer from the similar experience of the missionary Brebeuf, who in his report of 1636, near the beginning of the Huron mission, relates that having to address an assembly of chiefs and elders of the "Nation of the Bears," and invite them to attend to the precepts of his religion, he closed his address by presenting to them a belt of twelve hundred wampum-beads, telling them that it was to smooth for them the way to Paradise. "Such," he adds, "are the expressions which they are wont to use in making presents to assist in achieving any difficult enterprise."

Respecting the device on this belt of Brebeuf, we are told nothing; but its character may be conjectured from that of the belt which was afterwards given to the chiefs of the Tobacco Nation for a similar purpose, and which their successors have preserved for us. The figures are in white beads on a dark ground. This costly substance, as well as the size of the belt, indicates the importance attached to the gift. Near the centre of the belt is the usual oval or lozenge-shaped figure (Plate XII, 2) representing a council. In this case it must have been understood that the belt was a formal offering and overture from the whole mission council to the Tionontaté nation. By this time, at least thirteen years after Brebeuf's present, the Huron Mission, with its numerous members and lay followers and its imposing buildings, had become an important body. The members held regular councils, which led to results of serious consequences. On each side of this symbolic council-hearth are religious emblems. Nearest the hearth, on either hand, are two extraordinary figures, intended to represent the Dove and the Lamb; and beyond them are three crosses in the Greek form, understood to indicate the Trinity. Some other figures—whether of mere ornament or of some significant purport cannot now be judged—seem anciently to have closed each end, but have now in part disappeared through the loss of the beads composing them. The whole remaining device, grotesque as it seems to

our notions, formed a striking text of useful mnemonics for missionary exhortations. The belt contains fifteen rows of beads, the figures white on a dark ground, and must have comprised originally not less than three thousand beads.

4. "*The Four-Nations Alliance Belt.*"—The notable difference between this and the three preceding belts marks a wide chasm of time and a great change of locality and condition. The latest date which can be ascribed to the Jesuit missionary belt is the year 1648, the eve of the expulsion of the Hurons by the Iroquois. The date fixed for the "Four-Nations Belts," by Peter Clarke, in the second decade of the eighteenth century. This belt is consequently younger than the Jesuit belt by over sixty years. During that period the Tionontaté people, now known as Wyandots, had fled from the Blue Hills of their Lake Huron Switzerland to the far west of Lake Superior, and had thence returned to the vicinity of Detroit, as already related. Here they were welcomed not only by the French garrison and settlers of that post, but also by the three Algonquian tribes who held the lands in the vicinity, the Ojibwas, Ottawas, and Potawatomies. An alliance was formed between these four nations, the terms which are carefully set forth by its Wyandot chronicler. It was mainly a treaty respecting lands, which will account for the shape of the figures. In lieu of the oval council-hearth, we have four squares, Plate XII, 6, which indicate, in the Indian hieroglyphic system, either towns or tribes with their territories, and remind us of the similar Chinese character, which represents the word "field." The "White-peoples' houses," at the ends of the belt, Plate XII, 5, signified the French forts or settlements, which protected the native tribes alike against their persistent Iroquois enemies, and against the marauding Indians of the south and west, especially the Cherokees and the Sauks and Foxes. For purposes of cultivation and of hunting, the lands about Detroit were divided into four districts, one for each nation, two districts being east of the Detroit River in Canada, and two in Michigan, west of that river; but each nation was to have the privilege of hunting in the territory of all the others. It shows the strength of a treaty established by the solemnity of a wampum belt that this compact remained in force among the four nations, in spite of wars and changes of government among their white protectors, and through all the turmoil and confusion of Pontiac's conspiracy, in which all the Indians were more or less engaged, for over a hundred years, from the first decade of the eighteenth to the fourth decade of the present century. At the latter period, the Algonquian nations had each sold a portion of its separate territory to their white neighbours. They still, however, claimed their ancient privilege in the Wyandot lands,

or a money payment in lieu of it. Against this unreasonable claim the Wyandots protested, and their protecting government, then represented by Sir Francis Head, promptly settled the matter in a whimsically arbitrary fashion, characteristic of this military-minded ruler, by not only rejecting entirely the claim of the Algonquians (except in a certain fashion those of them residing in Canada), but by deciding to sell a portion of the Wyandot lands, and to invest the proceeds partly for the exclusive benefit of the Wyandots, and partly for the behoof of the Canadian Indians in general. Thus the "Four Nations Belt" ceased to have any efficacy as a political document. It became simply an historical record, and one of no little importance, as continuing our knowledge of the Huron Annals for the full term of three centuries, from Cartier in 1535 to Sir Francis Head in 1836. This, with the subsequent time to the present date, is a longer period of authentic history than can be claimed for any other aboriginal people north of Mexico.

V.

THE PENN WAMPUM BELT.

Belt Deposited with the Historical Society of Pennsylvania in 1857 by a great-grandson of William Penn—Supposed to Record a Treaty made with the Delaware Indians in 1682—Evidence of its Iroquois Origin—Symbolic Inscription—Probable Date and Occasion of its Presentation to Penn.

Our study may be further illustrated and its usefulness shown by some account of a very celebrated wampum record, to which reference has already been made. This is the "Penn Wampum Belt," Plate XIII, 3, which is preserved in the archives of the Historical Society of Pennsylvania. A *fac-simile* of this belt is given in the sixth volume of the memoirs of that Society (for 1858), together with a record of the very interesting proceedings that took place at the presentation of the belt to the Society in April, 1857, by Mr. Granville John Penn, the great-grandson and one of the heirs of the illustrious founder of Pennsylvania. In the address which was made on the occasion by Mr. Granville Penn are set forth with much persuasive force his reasons for believing that this is the identical belt which was given to his ancestor by the Indian chiefs "at the great treaty held in 1682, after his arrival in this country, confirmatory of the friendly relations which were then permanently established between them." "That such is the case," continued Mr. Penn, "there can exist no doubt, as (though it has come down to us without any documentary evidence) it plainly tells its own story; and

in accordance with the resolution passed by the Society at its last meeting, I beg to offer the following observations in evidence of the fact. In the first place, its dimensions are greater than of those used on more ordinary occasions, of which we have one still in our possession—this belt being composed of eighteen strings of wampum—which is a proof that it was the record of some very important negotiation. In the next place, in the centre of the belt, which is of white wampum, are delineated in dark-coloured beads, in a rude but graphic style, two figures, that of an Indian grasping with the hand of friendship the hand of a man evidently intended to be represented in the European costume, wearing a hat; which can only be interpreted as having reference to the treaty of peace and friendship which was then concluded between William Penn and the Indians, and recorded by them in their simple but descriptive mode of expressing their meaning by the employment of hieroglyphics. Then the fact of its having been preserved in the family of the founder from that period to the present time, having descended through three generations, gives an authenticity to the document which leaves no doubt of its genuineness; and as the chain and medal which were presented by the Parliament to his father, the Admiral, for his naval services, have descended among the family archives unaccompanied by any written document, but are recorded in the journals of the House of Commons, equal authenticity may be claimed for the wampum belt confirmatory of the treaty made by his son with the Indians; which event is recorded on the page of history, though, like the older relic, it has been unaccompanied in its descent by any document in writing."

But it may be observed that the "older relic," the Admiral's medal, doubtless had an inscription, which alone would have sufficed to identify it. The wampum belt had also its inscription, which, if its purport had been known in 1857, either to the generous presenter or to the grateful recipients, would have satisfied them that the belt could not have been that which they, with such apparently good reasons, naturally supposed it to be. This inscription did not, in fact, escape notice at the time. The Society's official reporter, in describing the belt, remarks that "there are three bands, also worked in violet beads, one at either end, the other about one-third the distance from one end, which may have reference to the parties to the treaty, or to the Rivers Delaware, Schuyllkill, and Susquehanna." The conjecture that these bands "had reference to the parties to the treaty" was a sagacious one, and was undoubtedly correct. At the first sight of the belt, when it was shown to me at a later day by the obliging officials of the Society, I was able to assure

them that the belt could not possibly have been presented to William Penn, at the treaty of 1682, inasmuch as that treaty was made with the Delaware (or Lenâpé) Indians, while the belt is unquestionably of Iroquois origin, and must have been presented by some representative of the Five Nations. The oblique bands are the well-known symbol of the federation. The origin and meaning of the symbol are well understood among the Indian tribes. The confederacy was known as the "Long-House," a metaphor which in their speech was carried out in minute particulars. The ordinary Iroquois communal dwelling, called a "long-house," was constructed by planting on each side of the site of the intended edifice a row of strong "frame-poles," which, after rising to a certain height, were bent inward to meet and form between the rows a long covered hall, like a garden arbour, to which it has been frequently compared. This hall was divided by transverse compartments into separate dwellings for the different households. These frame-poles were bound together by smaller interlacing poles and withes, and the whole framework, on sides and roof, was carefully covered with closely fitted strips of bark (answering to our siding-boards and shingles) leaving only an opening along the centre of the roof for the smoke to escape from the fire-hearths below, of which there was one for every two households. The large bent frame-poles were known to the natives by the name of *kanasta*, a word which they render in English by "rafter." This is the object which is represented on wampum belts by the inclined band, and which is deemed, by a natural synecdoche, the symbol of their confederacy. Thus the Iroquois league is spoken of in their Book of Rites as *kanasta-tsikowa*, "the great framework." It was this mighty structure, which, when the belt in question was given, overshadowed the greater part of North America, that was indicated by the oblique bands. That there might be no question on this subject, I showed the *fac-simile* in the book to my intelligent friend, Chief John Buck (*Skanawati*), the leading chief, and one of the best informed men of the Six Nations, and asked his opinion of it. He affirmed, without hesitation, that it was an Iroquois treaty belt, though on what precise occasion it was given there was nothing to show.

The occasion when it is probable that this belt was given seems, however, to be sufficiently shown in the "Colonial Archives of Pennsylvania," vol. i, p. 144, which record a treaty made between William Penn and the chiefs of several nations of Indians, who united in confirming all former cessions of lands, and in establishing a "firm and lasting peace," so that, as the written treaty declares, in words evidently suggested by Penn himself, they "shall forever hereafter be as one head and one

heart, and live in true friendship and amity as one people." Among the names of the contracting chiefs who represented their several nations, special prominence is given to "Ahoakassough, brother to the Emperor or Great King of Onondagoes of the Five Nations, who had arrived in town (Philadelphia) two days ago, with several others of their great men, and Indian Harry for their interpreter." A delegation of this character would not have attended a treaty conference without bringing unquestionable credentials, such as a belt like this would have furnished. Mr. Frederick B. Stone, of the Pennsylvania Historical Society, in his elaborate paper on "Penn's Treaty with the Indians," published by the Society, says of the treaty of 1701:—"This treaty seems to have been a very formal affair, and certainly it was a most important one. We do not doubt that tradition has in some manner confounded what was done at it with the earlier treaty which Penn's letters of August 16, 1683, tell us had been held."

At this date, as Lawson has informed us, the machine-made wampum had not been accepted by the natives, and we are not surprised to find in the carefully lithographed *fac-simile* abundant evidence of the "pains and labour" expended by the natives in the manufacture of the hand-made beads, and in wearing them with bark filaments in a belt of the extraordinary width of eighteen rows, making it undoubtedly one of the most important and characteristic of aboriginal treaty records.

VI.

GENERAL CONCLUSIONS.

Evidences of a Real Civilisation in Aboriginal America—Intellectual and Moral Qualities Indicated—Probable Error of some Ethnologists and Possible Disastrous Results.

It will be noticed that each of the five wampum belts here described has its distinct device or inscription, and that these devices have for the most part passed beyond the stage of picture-writing and become conventional characters, analogous to those of the Chinese script and to a large portion of the Egyptian hieroglyphics. The only instances of mere picture-writing in the five belts are the two men with joined hands on the Penn belt and the "white people's houses" on the Huron "Four Nations" belt. If the three conventional devices on the Jesuits' belt are of missionary suggestion, the five different symbols on the other four belts—the oval figure indicating a tribal council, the square representing a nation, the double-calumet for a treaty of alliance, the white line for an assurance of peace, and the inclined bands signifying the Iroquois con-

federation—are all of purely native origin, and are employed in a manner which shows a clear appreciation of the value of written language, highly creditable to the inventors. It may be noticed that we have nothing positive in the Homeric poems or in the results of modern excavations to show a similar advance in the Greeks of the Homeric Age,—and this despite their near proximity to the Egyptian and Assyrian literary civilisations. It should further be considered that the formal exchange among the Indian nations of documents so constructed and inscribed as to be permanent records of treaty compacts, is a custom which could only have arisen in communities among whom the keeping of good faith was a general habit and in public matters a confirmed tradition.

The extent and frequency of the use of this method of conveying messages and recording compacts are deserving of notice. The Iroquois ambassador Kiotsaton, who in 1645 came to Quebec to conclude a treaty of peace with the Governor, Montmagny, as recorded in the Jesuit Relation of that year, delivered seventeen wampum belts, each having its own distinct significance and consequently its own special device. Later in the same year another embassy followed to confirm the treaty and extend its terms so far as to include all the Indian allies of the French. On this occasion twenty-two belts were presented, each bearing its separate message. The Colonial Records of Pennsylvania describe many treaties between the Iroquois and various southern nations, accompanied by the delivery of belts. In vol. ii of these Records, p. 246, there is an account of "a very large wampum belt of twenty-one rows, with three bands [evidently the symbolical *kanasta*] wrought in it in black (the rest white), which belt was a pledge formerly delivered by the Onondaga Indians, one of the Five Nations, to the Nanticokes, when they made the said Nanticokes tributaries." On a later page (387) we read of the same Nanticokes. who had then (in 1707) been twenty-seven years at peace with the Five Nations." They had nineteen belts of wampum then prepared to send to the Five Nations as a tribute. At page 471 the Ganawese Indians, in an interview with the Colonial Council, "lay on the table of the Council a belt of wampum to enforce their words," and at the same time state that they had twenty-four belts provided as a tribute to the Five Nations. In vol. ix of the Records, page 774, there is an account of the then "Six Nations" with the Catawbas and other southern nations, at which the latter gave twenty belts and many strings of wampum. Mr. Holmes gives particulars of many similar Councils, and pictures of several notable belts, each having its own special inscription. The American Colonial

Archives and Missionary Reports of the seventeenth and eighteenth centuries abound with similar notices. If only a tithe of all the belts then presented, with the significance of their mnemonic devices, had been preserved, it would constitute a literature of aboriginal diplomatic records of which the great historical and ethnological value would not be disputed.

The facts adduced in the foregoing pages seem to lead to some further inferences which are deserving of careful and candid consideration. It is apparent that when the Spanish, English, and French colonists arrived in America, with the intention of taking possession of the land—which necessarily meant the extermination of the native inhabitants—they found these inhabitants enjoying frames of government and forms of civilisation which evinced intellectual and moral faculties of no mean order. These statements are not only true of the populous communities of Peru, Mexico, and other central and South American countries, but in some respects will apply with even greater force to the tribes of North America, who then occupied what are now the United States and Canada. Here we find a real money, which, if it had not all the characters of a true currency, approached it very nearly, and offered many of its advantages. We find the elements of a written language, widely diffused, and employed especially in preserving, with happy effect, the memory of treaties of peace and alliance. And we find established systems of government, so devised as to preserve for centuries the personal liberties and tribal independence of the communities maintaining them. We find also, according to the testimony of all the early explorers, a degree of generally diffused comfort throughout the greater portion of the native population, not inferior to any that has existed in other parts of the globe.

If scholars who have made what they deem a careful and impartial study of the languages, customs, and traditions of the American race and of other so-called inferior races, have found in them, as they believe, evidences of natural endowments not inferior to those of any other races, but merely kept down and made torpid by centuries and perhaps millenniums of unfavourable environment, they may be entitled to suggest, by way of friendly warning, that other students who take a contrary view, and devote themselves to the agreeable and popular taste of exalting the race to which they themselves happen to belong as naturally superior to all others, may be as sadly mistaken as the Chinese sages have been in the like circumstances, and may be helping to prepare for the future millions of the self-sufficient and intolerant Aryan race the same deplorable destiny that is now overtaking the self-sufficient and intolerant millions of China.

THE HALE SERIES OF HURON WAMPUM BELTS.

Notes and Addenda. By Prof. E. B. TYLOR, D.C.L., F.R.S.

WHILE writing these remarks, I received with regret but hardly surprise the intelligence of Mr. Hale's death. The tone of his letters for months past had been that of a man looking toward the end of his work in life, and anxious to settle finally all matters he had much at heart. Among these were his investigations into the history of his friends the Iroquois and Hurons, to carry out which he had given so much labour, and of which his last studies, undertaken to elucidate their native records, form a fit completion.

The "Hale Series of Huron Wampum Belts," which lately passed into my hands, have been presented by me to the Oxford University Museum, where they are now placed in the Pitt-Rivers Collection. In bringing before the Anthropological Institute the long and careful paper written by Mr. Hale to accompany this group of American Indian records, illustrations were needed, the principal of which are here reproduced in Plates XI, XIV, and Figs. 1 and 2. I also found it desirable for clearing up points in the paper, and in support or criticism of the writer's views, to add a number of remarks. These, with others arising from questions raised in further correspondence with Mr. Hale, are now appended, reference being made to the passages of the paper with which they are connected.

Wampum Beads and Belts (page 233).—The different modes of fashioning wampum, serving as they do to determine its date and origin, require further consideration here. After

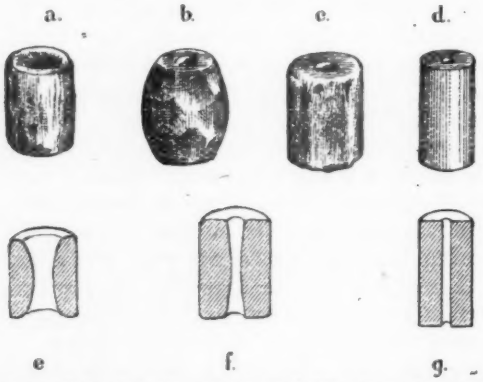


FIG. 1.—*a*, *e*, ground bead, native make, probably stone drilled, Canada; (Dr. Dawson). *b*, *c*, *f*, rudely ground beads, probably awl-drilled; from Missionary Belt, Plate XI, 3. *d*, *g*, machine-turned and drilled bead; European make.

going somewhat carefully into the matter with Mr. H. Balfour, I have drawn up the following particulars in which we agree. As to the outside shaping of the beads there are two kinds. The more ancient beads were made by rubbing down a fragment of shell on a stone till the facets united in a fairly regular outline, Fig. 1, *a*, *b*, *c*; the modern beads, *d*, received their cylindrical shape by turning in a lathe. This classification by the outside distinguishes native-made beads from those made in the colonial workshops, but it does not show whether those of native make date before or after the coming of the white men. This, however, may be to some extent learnt from the mode of boring. Before European times, the Indians no doubt bored their shell-beads by means of a chipped point of flint or other hard stone, fixed to a stick which they twirled between the palms of the hands. It is obvious that their mode of drilling hard stone by means of a stick or reed with sharp sand, though suitable for boring holes half an inch or more in diameter, was quite impracticable for perforating wampum. Only boring with the flint point would serve, and that only for short beads. It is seen by specimens of beads of the Stone Age found in the older Indian graves, and even by such ancient beads as are still worn in Indian necklaces, that cylinders and even thin discs of shell were perforated from both ends, the two conical borings meeting in the middle. This is indicated by the diagram *e* in the figure, showing the perforation of the shell-bead *a*, one of some genuine stone age beads from Indian graves, of which selections have been kindly sent to me from Canada by Dr. G. W. Dawson and by Mr. David Boyle. When the goods of the white traders came within reach of the Indians, European tools must have begun to supersede the flint point. A tempered steel tool was needed to bore the shell of the quahaug or hardshell clam, *Venus mercenaria*, from which all the purple wampum beads and a great part of the white were made, other white beads being from the columella of univalves such as the whelk-like *Fulgur carica*. The hardness of this material is seen from the fact that though a steel blade will scrape the clam-shell, an ordinary soft iron nail writes on it like a pencil. Indeed the hardshell clam seems to have become typical of stubbornness, perhaps having even suggested the popular names of the Hardshell Democrat and the Hardshell Baptist. There is a remark by Roger Williams who, writing in his Vocabulary of 1643, incidentally records both the original use of the stone drill for boring the shell beads, and its supersession by the European awl. He writes, "before ever they had awle blades from Europe, they made shift to bore their shell money with stones."[1] The awl may have been fastened to a stick and twirled between

[1] Roger Williams, "A Key into the Language of America," p. 144.

the hands, or it may have been worked with the pump-drill, such as in Europe china-menders still use for their very similar purpose. The use of this instrument, easily made from pieces of wood and string, seems to have been learnt from the Europeans by the natives far and wide in America; for instance, it may still be seen among the Zuñis of New Mexico. The diagram *f*, representing the boring of the ground beads *b* and *c*, fairly represents the result which the Indian reached in the 17th century by the use of European tools. The slightly conical borings due to an ill-centred metal drill, and still made from both ends to meet in the middle, distinguish the beads of this period from both the first and last kinds. Finally, we come to the ordinary product of the Dutch and English wampum factories. These are the machine turned and drilled shell-beads shown by *d* and *g* in the figure, in their dimensions like ¼-inch lengths of a common clay tobacco-pipe.

Applying this criterion to the wampum belts which form the subject of Mr. Hale's paper, Mr. Balfour and I fail to find in them any stone-bored beads, which is equivalent to saying that they belong to the European period and cannot be much earlier than 1600. The Huron belts, Plate XI, 1, 2, 3, consist of ground and apparently awl-bored beads, even the most symmetrical not seeming to be turned. They may thus be assigned to a time when the Indians had already begun to obtain European steel tools which they could convert into suitable drills, but when factory-made wampum had not come in. Now about 1611 Father Biard describes the Indian tribes as coming in summer by the River St. Lawrence to barter their furs against French wares, among which are specially mentioned awls and bodkins.[1] Thus there is no chronological objection to these belts being referred to events about 1640, a date at which the Indians were well supplied with such tools. The belt 4 is as certainly of factory-made beads, probably of the 18th century.

As to the other belts only known to me by pictures such as those figured by Prof. W. H. Holmes in his valuable account,[2] and even the Penn Belt (Plate XIII, 3) of which so large and careful a representation has been published by the Historical Society of Pennsylvania,[3] I do not think it desirable to express any opinion from this point of view. Even large photographs are insufficient to give the requisite details. But no doubt the anthropological interest attaching to the questions raised by

[1] "Relations des Jesuites dans la Nouvelle France." Quebec, 1858, vol. i, p. 7. 1611. See also Jacques Cartier's "First Voyage."

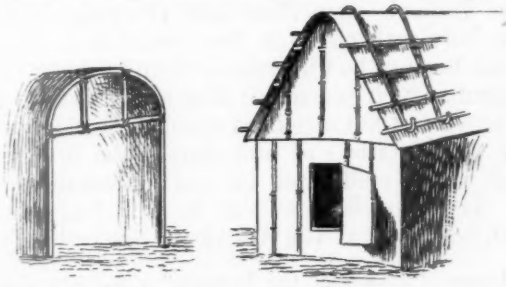
[2] W. H. Holmes, "Art in Shell of the Ancient Americans," in "Second Report of the Bureau of Ethnology," Washington, 1883, p. 185.

[3] "Contributions to American History," Philadelphia, 1858.

Mr. Hale will lead to all such important wampum belts being examined with a view to settling their dates approximately from their make. Especially if there exists anywhere a wampum belt made of stone-bored beads, or even of stone-bored and awl-bored beads mixed, it will be heard of. There is at present no known wampum belt which appears to have been made before the European period in America.

The Iroquois Oblique Band (p. 244).—The statement that the oblique band on a wampum belt is the symbol of the Iroquois Confederacy, was brought forward so far as I know for the first time by Mr. Hale in his paper read at the British Association at Montreal in 1884. In his present paper it is reinforced by the substantial authority of two chiefs well versed in Iroquois tradition—G. H. M. Johnson (Onwanonsyshon), the Government interpreter, and John Buck (Skanawati), the official keeper of the wampum, whose father, grandfather, and great grandfather had held the same office. As, however, the point seemed one on which all available evidence should be collected, I made a further communication to Mr. Hale, who then sent a photograph which he had had taken of the belts belonging to the Six Nations, here reproduced in Plate XIII (*a*). Some of the belts are those held in the hands of the chiefs photographed for Mr. Hale in the act of telling the wampum, Plate XIV, 3. The fact that about half these most genuine Iroquois belts have the oblique band, confirms the statement that it belongs to the Iroquois League.

The oblique band thus being considered a conventional representation of the *kanasta* or rafter of the *kanasta-tsikowa*, or great rafter framework, a name applied to the Iroquois League as symbolized by the native long-house extended by successive additions at the end, it becomes desirable to notice how far the band is like the actual rafter of such a structure. For this purpose two sketches of the Iroquois bark-house are given, Fig. 2, *a*, *b*. Here *b* shows the modern Europeanized form from



a *b*.

Fig. 2.—Iroquois bark-house : *a*. Old form. *b*. Europeanized.

Morgan.[1] The older and characteristic Iroquois house of the two preceding centuries is represented in *a*, from one of the illustrations in Lafitau, which shows an Iroquois bark-cabin with the screen forming the end removed. The roof is formed by bending over flexible poles made fast to the tops of the upright stakes at either side, and covering them in with sheets of bark. Traces of this older structure are to be still seen in the flexible pole, holding down the bark sheets in *b*. Lafitau considered the form of the cabin *a* to belong especially to the Iroquois-Huron family and their neighbours who copied it from them. If so, the adoption must have begun long before his time, for these are the houses in which, as early as 1585, the Algonquian tribes of Virginia are represented as living. Mr. Hale's description of the stakes set in the ground and bent over to meet in the middle so as to be wall-posts and rafters in one, though this structure is not unknown, can hardly have been the typical form of the Iroquois long-house at least in times after the League. It is thus not quite clear what part of the structure the Iroquois depicted by the oblique band.

The Penn Treaty (page 242).—Though the well-known picture by Benjamin West was painted many years after Penn's arrival in the colony, it seems to have been studied with care, and may fairly be taken to represent what the scene was like in colonial memory. It corresponds with Penn's own account, in which there is mention of gifts and friendly speeches, but none of the wampum ceremony. A small copy of the picture is here given (Plate XIV, 1), in order to contrast it with Lafitau's picture of a treaty council where a wampum belt is delivered (Plate XIV, 2). This, conventional as the figures are, no doubt fairly represents how one of these highly ceremonial acts was really performed.

Origin of the Wampum Belt.—In the last letter I received from Mr. Hale, November 12th, 1896, he mentioned that whereas he had hitherto declined to accept the positive assurance of the Iroquois councillors that Hiawatha (Hayuñwatha, "Wampum belt maker") was the inventor of the wampum belt, this was because he understood them to mean that he first made wampum, which seemed to him an incredible statement. But since he wrote the foregoing memoir he had come to understand that they ascribed to him simply the invention of the woven belt, as a credential for his ambassadors of peace. Accepting the Iroquois tradition in this form, he wrote a paper which was read at the American Association in August,

[1] L. H. Morgan, "League of the Iroquois," p. 3. See also Morgan, in "Contributions to N. A. Ethnology," vol. iv, p. 64. Lafitau, "Mœurs des Sauvages Americains," vol. ii, p. 9, 80–314.

1896. This paper will be found in the "Popular Science Monthly," February, 1897, under the title "Indian Wampum Records." The acceptance of Hayuñwatha as the inventor of the wampum belt involves the argument that the name, derived from Ayuñwa = "wampum belt," and Katha = "to make," was a honorific name given to him in commemoration of his heroic deeds. Otherwise the evidence is substantially unchanged.

Such a tradition involves no impossibility, but it may be objected that considering how many obvious fables have centred in Iroquois legend round the name of their national hero, it is too much to accept as real history the details of his foundation of the Iroquois League. The added belief that he invented the art of using the native shell work as a means of pictorial record, now comes apparently for the first time to European ears. Granting that it is now Indian tradition, a period estimated at over four centuries is a long time for such tradition to run clear unless supported by material records. Even if there were undoubted wampum belts dating from the beginning of the League, the traditions talked into them might have given more solid ground of history. The Onondaga wampum belt figured in Plate XIII, 2, showing four tribes united by one heart, has been claimed as recording the formation of the League. But Mr. Beauchamp, a good judge, considered the beads too regular to be hand-made. If so, it is some 250 years later than the date assigned to the League, yet Mr. Beauchamp declares that it is considered the most ancient, and to record the foundation of the League, so that it may be called a kind of constitution, and is venerated accordingly.[1] If now it be determined finally by close inspection whether this belt is of beads stone-drilled or steel-drilled, hand-ground or machine-ground, we shall have a good opportunity of estimating the historical value of Indian tradition. Mr. Hale himself shows (p. 234) how fallible it may be. Until this and other examinations are made, it would, I think, be premature to discuss what individual Indian was the inventor of wampum belts.

Apart from this historical question, however, I would suggest in conclusion that there is an anthropological problem in which evidence is available, and seemingly tending toward a conclusion up to a certain point in the same direction with Mr. Hale's argument. Any student who examines the information which has been printed as to wampum belts will, I think, be curiously struck with the fact that almost all of it is Iroquois. What little relates to other peoples, especially in early times, is found among neighbours of the Iroquois under their influence

[1] W. H. Holmes, *l.c.*, p. 252; W. M. Beauchamp in "American Antiquarian," vol. ii, p. 228; H. Hale in "Popular Science Monthly," Jan. 1886.

and likely to borrow their customs. A map of the region of the wampum belt will be found to centre in the Iroquois country, leading to the inference that it was there that it had its origin.

DECEMBER 14th, 1896.

Special Meeting.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The following papers were read:—

"The Tyrrhenians in Greece and Italy." By Dr. OSCAR MONTELIUS.

"Pre-classical Chronology in Greece and Italy." By Dr. OSCAR MONTELIUS.

Messrs. A. EVANS, J. L. MYRES, LEWIS, PHENÉ, and RIDGWAY, and Mrs. STOPES took part in the discussion.

The TYRRHENIANS *in* GREECE *and* ITALY.[1]

By Prof. OSCAR MONTELIUS.

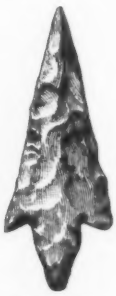
[WITH PLATES XV TO XXX.]

FROM the old centre in the valley of the Euphrates, a very high civilisation in a comparatively early period reached the western coasts of Asia and the south-eastern parts of Europe.

On the way from the Euphrates to the Mediterranean we find the Empire of the Hittites, occupying Syria and a great part of Asia Minor. By this people the Oriental civilisation had been brought much nearer to Europe than in the times when this culture was confined to the Chaldæo-Assyrian territories; and it is natural to suppose that, when this civilisation reached the coasts of Asia Minor, it must have had a tendency to go farther west, to spread over the isles in the Ægean Sea and the coasts of Greece. We find also on these isles and these coasts, in a very remote period, the remarkably high civilisation,

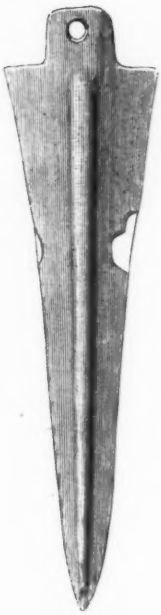
[1] The same ideas have been expressed by the author in the meeting of the Swedish Society for Anthropology and Geography, October 20th, 1893.

1. Flint.



2. Flint.

3. Copper.



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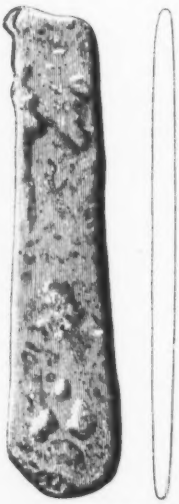
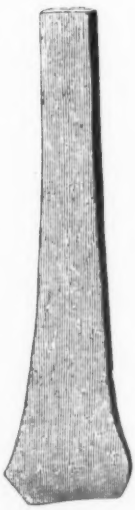
5. Silver.



10. Copper.

11. Copper.



12. Copper.

13. Copper.

5. Silver.

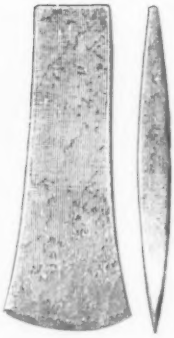
6. Copper.

7. Copper.

8. Stone.

9. Stone.

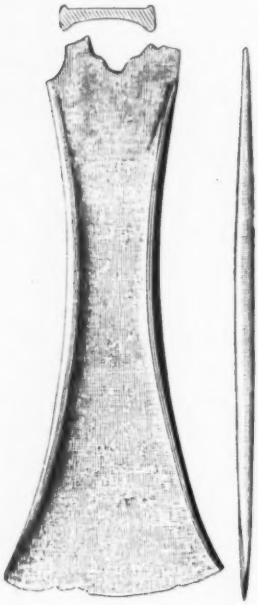
3. Copper.



14. Copper.

15. Copper.

16. Copper.



1. Bronze.

2. Br.

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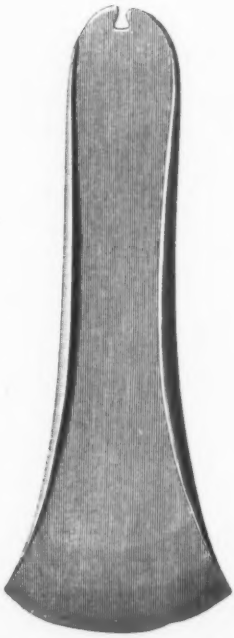


8. Br.

9. Br.

Period 1:2 (1950—1800 B. C.). **Pl. 2.**

4. Br.

5. Br.

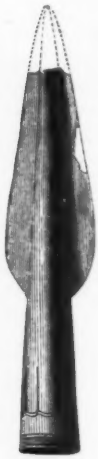
6. Br.

9. Br.

10. Br.

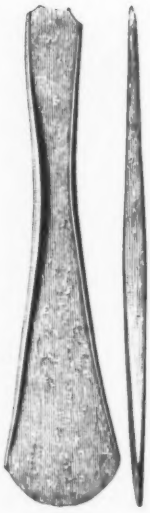
11. Br.

1. Flint.



2. Bronze.

3. Br.



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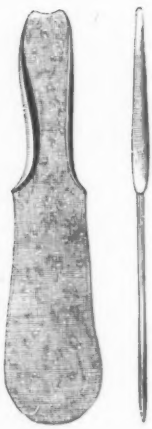

5. Br.

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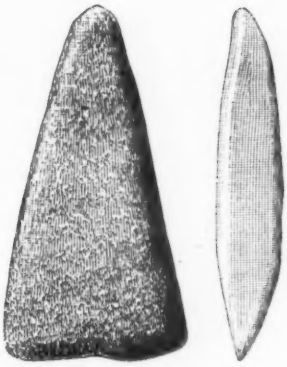
Period II (1800—1650 B. C.). **Pl. 3.**

7. Br.

8. Br.

9. Br.



10. Stone.

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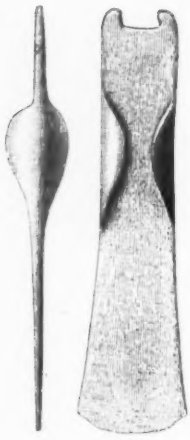
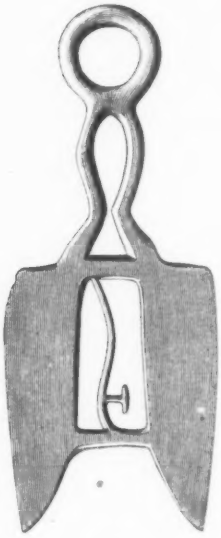


1. Bronze.



2. Br.

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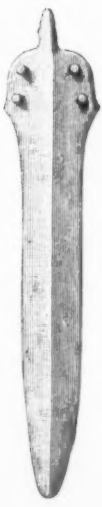


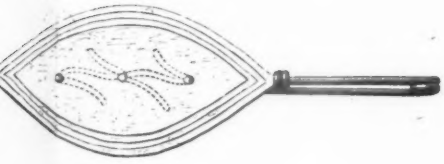
11. Br.

12. Br.

13. Br

Period III (1650—1350 B. C.). **Pl. 4**

4. Br.



5. Br.

6. Br.

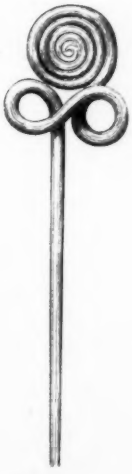
7. Br.

8. Br.

13. Br.

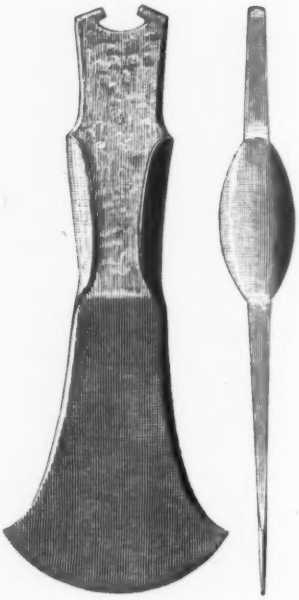
14. Br.

15. Br.



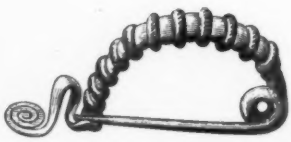
16. Br.

17. Br.

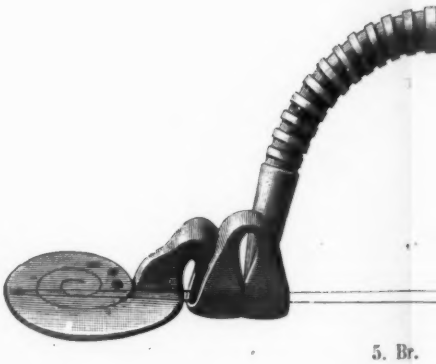


1. Bronze.

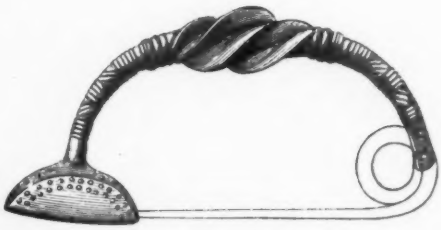
2. Br.



4. Br.



5. Br.

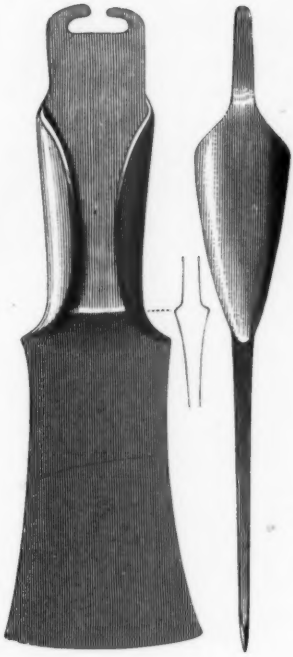


7. Br.

8. Br.

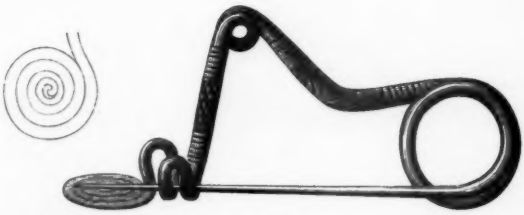
Period IV:1 (1350—1200 B. C.). Pl. 5.

2. Br.



3. Br.

5. Br.

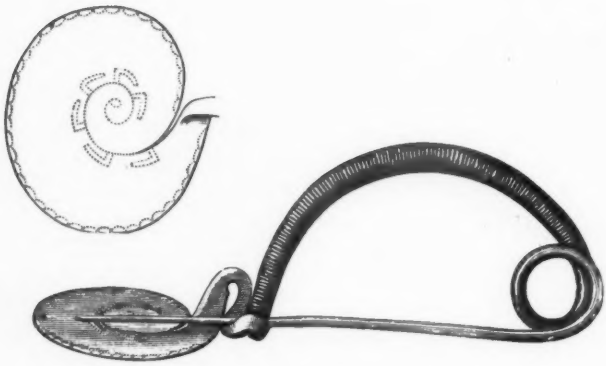


6. Br.

8. Br.

9. Br.

1. Bronze.



2. Br.

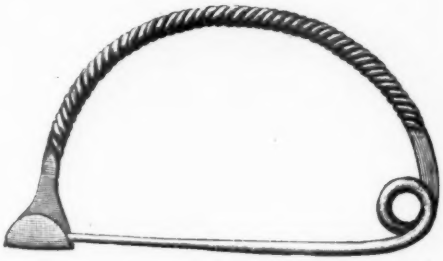
3. B

6. Pottery. (Only in Central Italy.)

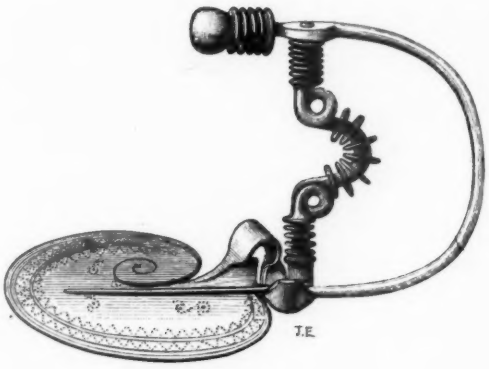
7. Potter

Period IV:2 (1200—1100 B. C.). · **Pl. 6.**

3. Br.



4. Br.

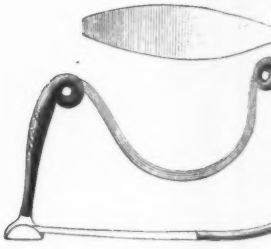


5. Br.

7. Pottery.

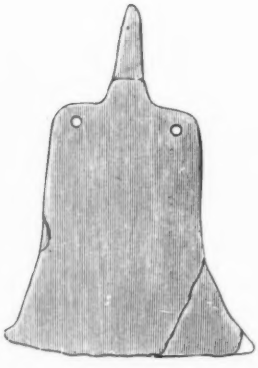
8. Pottery. (Only in Central Italy.)

1. Bronze.



2. Br.

4. Br.



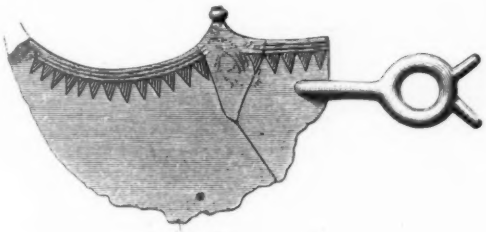
5. Br.

6. Br

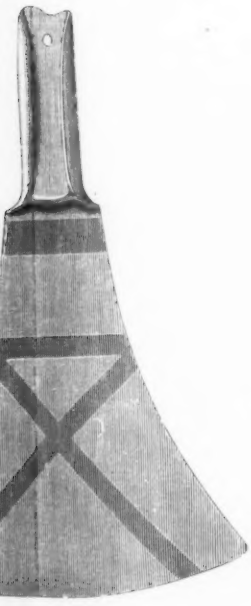
9. Pottery.

10. Pottery.

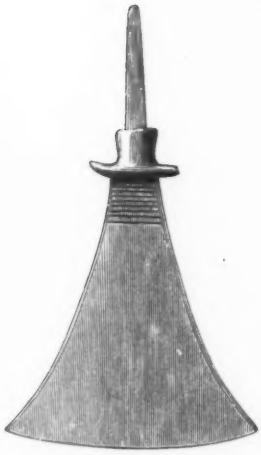
r.



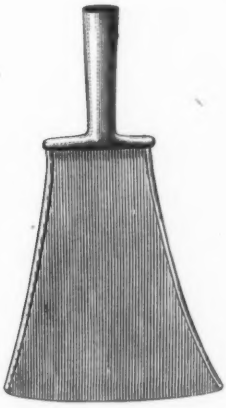
3. Br.



6. Br.



7. Br.



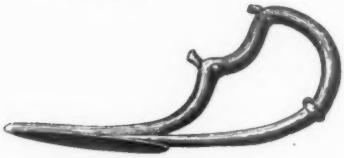
8. Br.

Pottery.

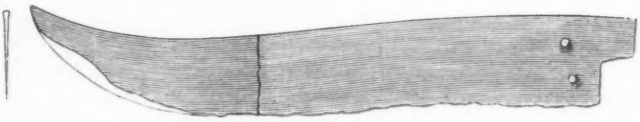
11. Pottery.

1. Bronze.

2. Br.

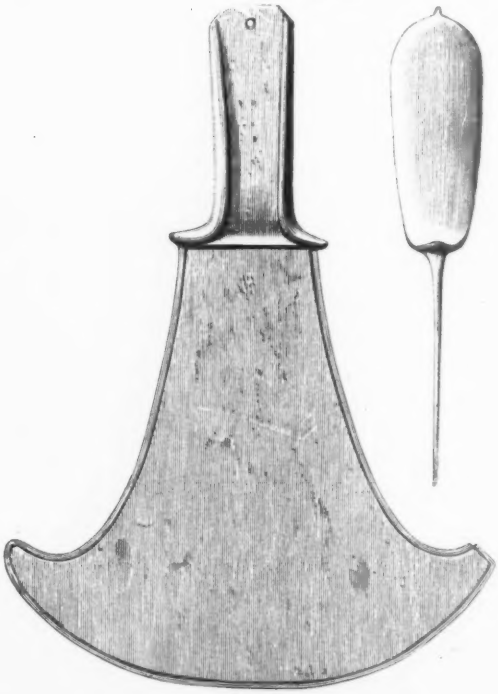


5. Br.

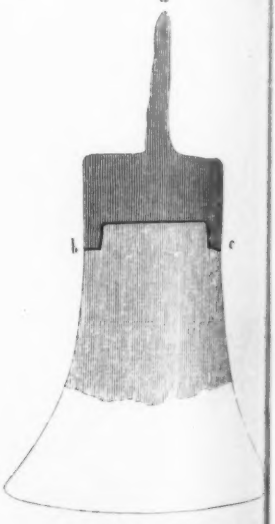


6. Br

7. Br

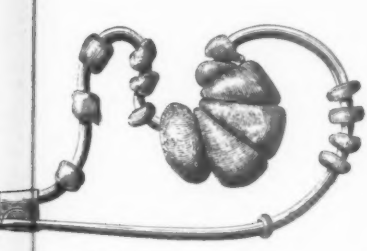


10. Br.



11. Br. and iron.

od II (950—750 B. C.). Pl. 8.



3. Br.

4. Br.

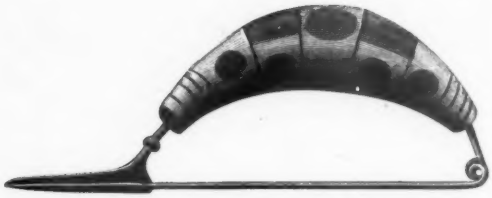
7. Br.

8. Br.

9. Br.

12. Pottery.

13. Br.

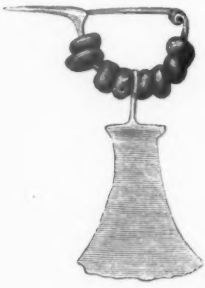


1. Bronze, amber, bone.

2. Iron.

5. Br.

7. Br.



4. Br., glass.

8. Br.

11. Pottery.

12. Br.

d III (750—550 B. C.). Pl. 9.

n.

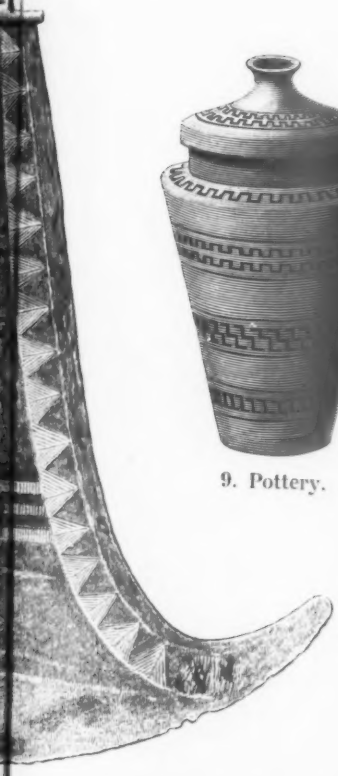
5. Br.

3. Br.

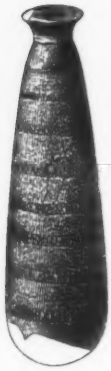
6. Br.

10. Br.

9. Pottery.



13. Pottery.



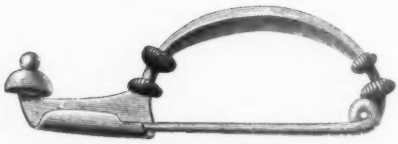
1. Alabaster.

2. Glass.

3. Glass.

5.

6. Br.



4. Bronze.

9. Redfigured.

10. Blackfigured.

5. Silver.

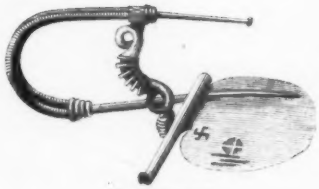
8 a. Redfigured.

7. Br.

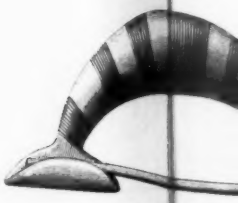
8 b. Redfigured.

11. Blackfigured.

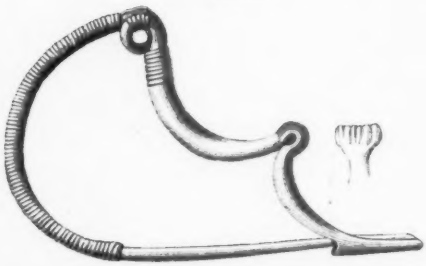
12. Redfigured.



1. Bronze.



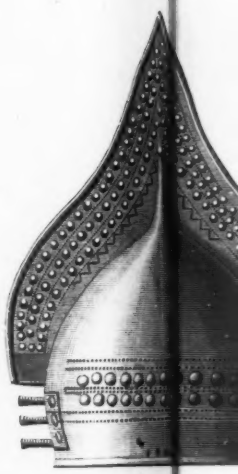
2. Br.



4. Br.

6. Br.

7. Pottery.

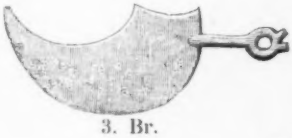


8. Br.

11. Pottery.

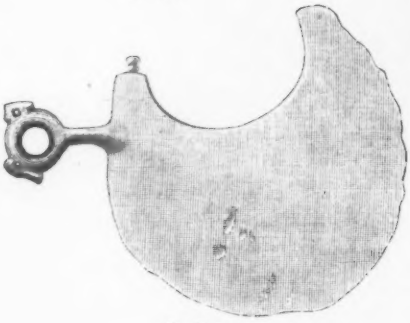
12. Br.

Br.



3. Br.

Br.



5. Br.

9. Pottery.

10. Br.

Br.

13. Br.

14. Painted pottery.

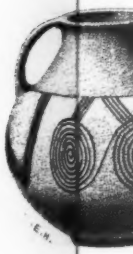
1. Bronze.

2. Br.

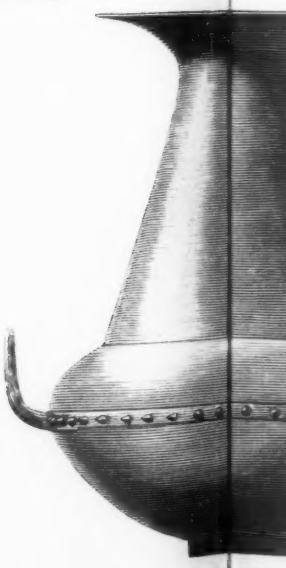
6. Painted pottery.

9. Painted pottery.

3. Painted p



7. Potte



10. Br.

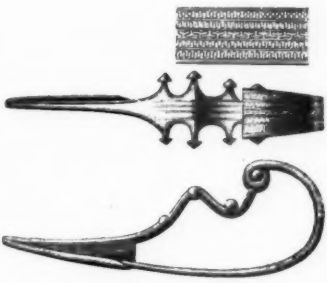
riod II (1000—900 B. C.). Pl. 12.

Painted pottery.

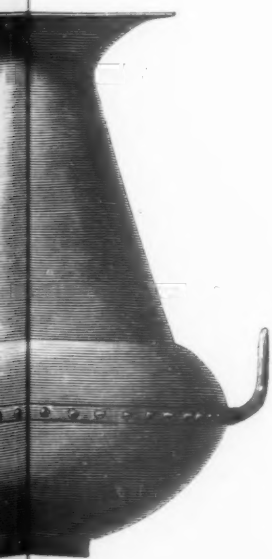
4. Br., amber.

7. Pottery.

8. Painted pottery.



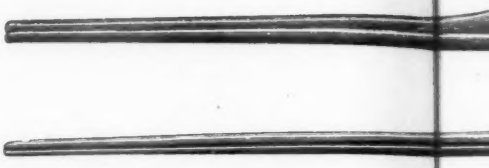
5. Silver.



10. Br.

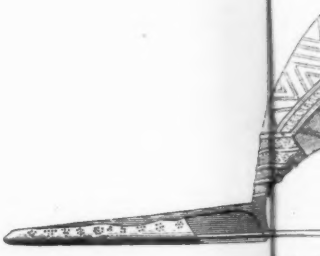
11. Painted pottery.

1. Painted pottery (Skyphos).

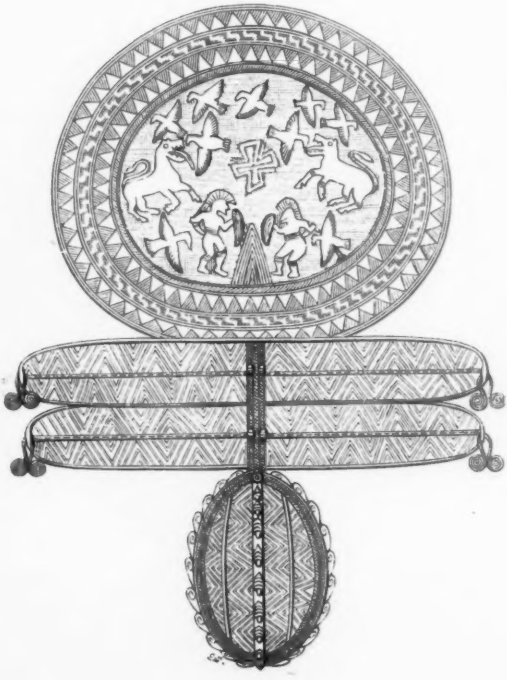


2. Gold

4. Bronze.



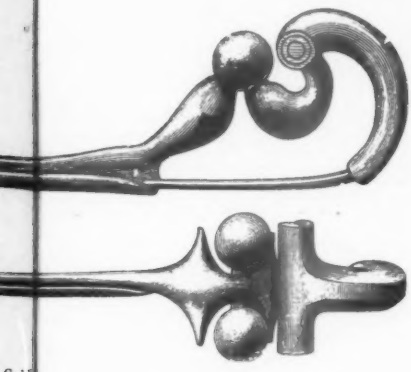
3. Gol



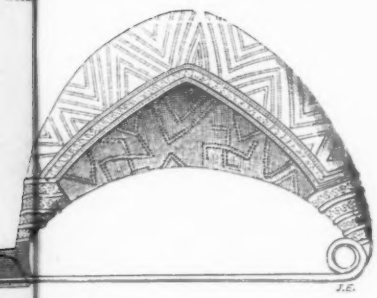
7. Gold.

8. Silve

riod I (900—800 B. C.). Pl. 13.



Gold



5. Gold.

3. Silver (Skyphos). Etruscan inscription.

6. Br.

8. Silver.

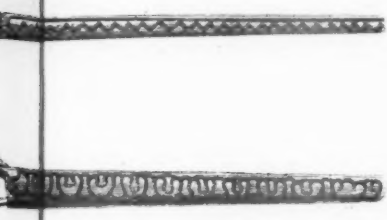
9. Black pottery (Bucchero nero).

2. Pre-Korinthian.

3. Pre-Korinthian.

7. Pre-Korinthian.

8. Bucchero nero.



. Gold.

4. Korinthian.

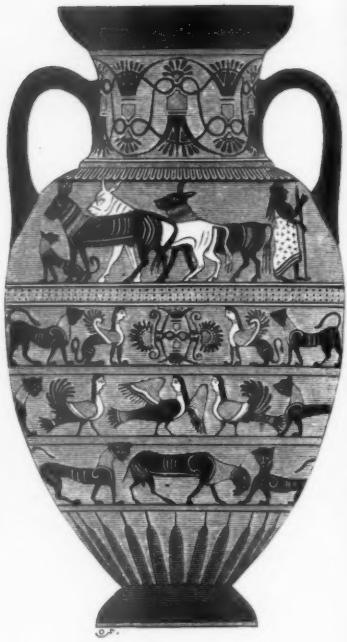
5. Pre-Korinthian.

6. Pre-Korinthian.

9. Korinthian.

10. Pre-Korinthian.

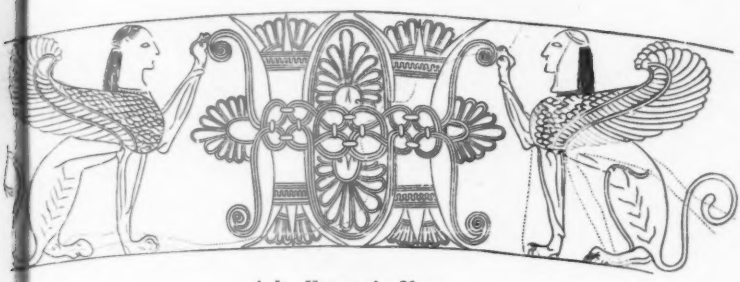
1. Korinthian.



2. Korintho-Attic.
(The figures of the broadest zone are drawn from another vase.)

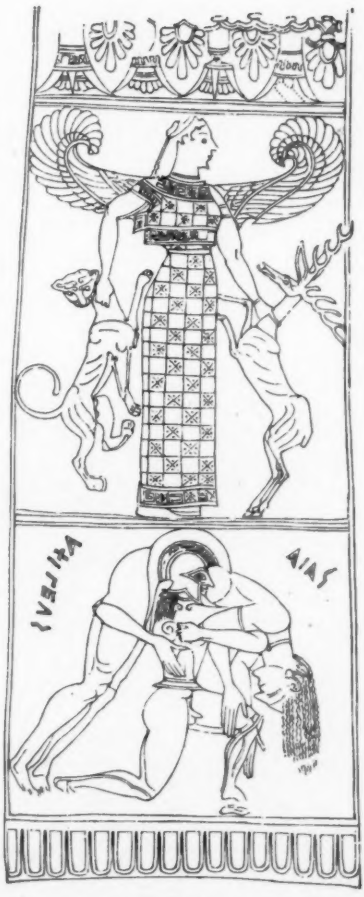
B

3. Amphiaraos Vase.



4 b. François Vase.

4 a. François Vase.



4 c. François Vase.

1. Blackfigured

2 b. Blackfigured.

2 a. Blackfigure

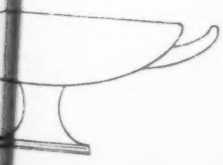
3 a. Redfigured

Peri[illegible]V (600—500 B. C.).

Pl. 16.

lackfigured (Exekias).

lackfigured (Tleson).



gured (Epiktetos).

3 b. Redfigured.

which was first discovered by Dr. Schliemann, and with which we have been familiar for the last twenty years, under the name of the Mycenæan.

The remains of this Mycenæan civilisation consist of the ruins of cities and tombs with their contents. In the city we find the citadel with the palace for the king, protected by walls of enormous stones, as at Tiryns, and accessible through strong gates like the Lion Gate in Mycenæ. The weapons and implements found in these cities and tombs are not of iron, but of bronze, or sometimes of stone. Thus, so that we have still to do with the pure *bronze age*, but yet with a far more advanced bronze age than in the other parts of Europe: with architecture, sculpture, and painting; with columns and vaults; with sculptured and engraved stones; with painted walls and painted pottery; with gold, silver, amber, alabaster, and lapis lazuli, with engraved gems, and the beginnings of an art of writing, as Mr. Arthur Evans has lately discovered.

These remains are principally to be seen in the isles and the coasts of Greece, and there is no difficulty in proving that this civilisation is *not* an indigenous one; it is not the direct continuation of the immediately preceding stage. It is evidently something foreign coming from another country.

The shape of the graves and their contents are new. Before that time the bodies were deposited in a little cavity, hollowed out in the ground, and lined with stones. In the Mycenæan period, the tombs are either large "fosse"—like the tombs discovered by Schliemann in the Acropolis of Mycenæ—or chambers accessible through a door on the side; the bodies were, as before, deposited unburnt. Most of the weapons, implements, personal ornaments and pottery placed in these graves are quite different from those belonging to the preceding period, but a great number of them resemble those found in the East.

Thus it is evident that the Mycenæan civilisation in Greece is due not only to an influence from another country, but to the immigration of a new people. That this people—or at least the great majority of the immigrants—came from Asia Minor is proved by the important fact, which however has not been sufficiently noticed, that the Mycenæan tombs are of the same kind as those common in Asia Minor, but are different from the characteristic Phœnician grave, which is a vertical shaft with a chamber opening on its side at the bottom.

The lions on the famous gate of Mycenæ and numerous other objects point also in the direction of Asia Minor, because similar remains have been discovered there, but do not exist in Phœnicia or Egypt.

The close relation between the inhabitants of Greece and the western parts of Asia Minor in those times is also proved by the numerous localities in both countries bearing already in the pre-classical time the same names. Among the most remarkable names of that kind are those of Olympos, Ida and Larissa.

On the other hand, there are in the Mycenæan remains many traces of a frequent intercourse with the Phœnicians and with Egypt.

The Mycenæan epoch in Greek history was a very long one. We can now—especially with the help of the pottery—distinguish four different periods, and we know that the later part of the 3rd period corresponds with the 15th century. This is proved, in the most indisputable way, by repeated discoveries in Greece and in Egypt itself of Mycenæan pottery of the later part of the 3rd period together with inscriptions bearing the name of the Egyptian king Amenophis or Amenhotep III and his queen Ti, who belonged to the XVIII dynasty and the 15th century B.C. This has also been confirmed by other combinations between the period in question and the XVIII Egyptian dynasty.

To this stage belong most of the grave-chambers at Mycenæ, Orchomenos, Vaphio and others; the graves discovered by Schliemann in the Acropolis of Mycenæ, with their unusually rich contents, of gold and weapons, are earlier.

Thus more than 1500 years B.C. there must have been an immigration of a new people into Greece, a people with a higher civilisation than that of the old, more barbarian inhabitants. The immigrants principally occupied the isles and the coasts. Nothing indicates that they expelled or annihilated the whole body of the former possessors of the country. It was most probably something in the same way as here in England and in France, when the Romans came: these occupied the country, they introduced there a higher civilisation than the old one, but their number was much inferior to that of the old inhabitants who remained after the occupation.

The immigrants into Greece came from Asia Minor, probably for the most part from Caria, Lydia, and other districts of the western coast. They were influenced by the Hittite civilisation, but it is not my meaning that they were themselves Hittites, properly speaking.

Greek tradition has much to relate about Pelops, the Kyklopes and others who in early times came to Greece from Asia Minor, and about a foreign people living then in Greece and possessing a very high civilisation. They are named Pelasgians or Tyrrhenians, and sometimes Carians or Leleges. All these names are found not only in Greece—especially in the isles

and the coasts—but also in the western part of Asia Minor. There can be no doubt that the Pelasgians or Tyrrhenians were the bearers of Mycenæan civilisation.

It has been generally supposed that the Pelasgians formed the whole body of the old inhabitants of Greece before the Hellenes. But this was never stated by the Greek authors. The Pelasgians are only mentioned as a people living in Greece, or in some parts of it, amongst the indigenous population, long before the classical time.

There is no sharp distinction made between Pelasgians and Tyrrhenians by the old Greek authors. Probably these two names were generic in the same way as Franks now in the Levant signify all the Europeans, or as Danes, Swedes, and Norwegians here in England during the Viking period were all called "Danes."

History tells us that the Pelasgians at last were driven out from Athens and most of the other Greek places. Those coming from Athens took possession of the isle of Lemnos, where they remained till about 500 B.C.

It is evident that the expulsion of the Pelasgians from Greece was a consequence of the Dorian migration, which is supposed to have taken place in the 12th century B.C., and some time after the Trojan war. Many of the Pelasgians and of the peoples which resulted from the amalgamation of Pelasgian and Greek elements—as for instance the Ionians—returned to the western coast of Asia Minor, where they founded the so-called Ionian colonies. Others took a westerly direction to Sicily and Italy.

This is not surprising, because it was natural that the civilisation coming from the east to Greece had a tendency to go farther to the west, and because we find traces of an intercourse between Greece and Sicily already in the Mycenæan period.

A great number of the Pelasgian emigrants from Greece came, together with kindred people from Asia Minor to the western part of Central Italy, between the Tiber and the Arno, founded there numerous colonies, and took possession of all this rich country. Here also, as had been the case in Greece, they were superior in civilisation, but inferior in number to the old inhabitants. The greater part of the latter remained after the occupation, and gradually mingled with the new-comers.

The new occupants of the country became best known under the name of Tyrrhenians, as the Greek authors, or Etruscans, as the Romans called them. There is no doubt that the Tyrrhenians in Central Italy and in Greece were the same people, and we can thus explain the many affinities in religion, arts and other things between the Greeks and the Etruscans.

The Greek tradition agrees fully with this statement of the case. Hellanikos of Lesbos,[1] in the 5th century B.C., relates that Pelasgians from Thessaly came to Central Italy, took from the Umbrians Kroton and Cære, occupied a great part of Campania, and founded there a new Larissa. Antiklides states that Tyrrhenian Pelasgians from Asia Minor came to Etruria; and we remember what Herodotos[2] says about the Tyrrhenian emigration from Lydia to Etruria. Tacitus relates that the Lydians still in his days possessed Etruscan documents, in which the Etruscans were said to descend from the Lydians, and have their nearest relations in the Peloponnesos.

Thus the opinion is expressed by all the old authors, that the Etruscans came to Central Italy by sea from the east. The only exception is Dionysios of Halicarnassos,[3] who considered them as an indigenous Italian people; but he lived more than 1000 years after the time in question; consequently, his personal opinion has no greater value than that of a modern writer, and he does not cite any tradition or historical fact to support his view.

I know very well that the modern German theory of the origin of the Etruscans does not agree with the Greek tradition. But I am quite sure that the archæological facts, in Central and North Italy, are now sufficiently well known, and that they prove the truth of this tradition.

These archæological facts may be summarised as follows:

During the bronze age there is no difference between North and Central Italy. In both parts of the peninsula we can see the same uninterrupted evolution, without any strong foreign influence which would indicate a fresh immigration. For example, in the later part of the bronze age, all the tombs in Central, as in North Italy, are simple *pozzi*, hollowed out in the ground, where the ossuaries with the ashes of the burnt bodies are deposited.

But at the period when iron begins to appear, all this is changed. We then find a sensible diversity between the districts on either side of the Apennines.

In North Italy, where the iron arrives later than in Central Italy, we still find only the immediate continuation of the old evolution with *tombe a pozzo* and the custom of incineration; while the types of the antiquities are evidently descended from their predecessors.

It is true that we find in Central Italy also some similar tombs with burnt bones and antiquities of the same kind as

[1] Quoted by Dionysios of Halikarnassos, I, 28, frag. 28b.
[2] Herodotos, i, 94.
[3] Dion. Hal., i, 28.

B.C.	Periods.	Bronze (or Copper) Implements and Weapons.			Iron Implements and Weapons.	Fibulæ.		
		Axes.	Daggers and Swords.	Knives.		Disc.	No Disc.	
							Not serpeggianti.	Serp
2100	Bronze Age. I: 1	Flat (copper)	Small daggers (copper), No swords.	—	—	—	—	
1950	I: 2	Flanged; low ledges; edge not much broader, not circular.	Triangular daggers (often with bronze handles), No swords.	—	—	—	—	
1600	II	Flanged; higher ledges; edge often broad and circular.	Swords and daggers.	—	—	—	—	
1650	III: 1	Winged; no stop-ridge.	Do.	Double-edged.	—	—	—	
1500	III: 2	Winged; slight stop-ridge.	Do.	Double-edged.	—	"Peschiera type." Little disc = fig. 1.*	"Peschiera type." = fig. 19, 20.	
1350	IV: 1	Winged; high stop-ridge.	Do.	—	—	Larger disc with spirals, = fig. 3–8, 195–200.	Large, = fig. 24, 25.	= 21
1200	IV: 2	Palstaves, primitive.	Do.	"Round," primitive.	—	Large disc, traces of spirals.	= fig. 34, 40.	=
1100	Pre-Etruscan Iron Age. Benacci, I.	Palstaves, thick.	Swords.	Round, broad.	Very rare.	No (or few) traces of spirals; one traverse.	Short channel, = fig. 48–67.	= 2
950	Benacci, II.	Palstaves, thick; not common.	Rare.	Round, broad.	Not very common.	—	Long channel, no button, = fig. 68–70.	= 25
750	Arnoaldi (I).	Palstaves, large, thin; rare.	—	Long; rare (none round).	Common.	—	Long channel, sometimes with button, = fig. 105.	=
550	Etruscan. Certosa.	—	—	—	Do.	—	"Certosa type," = fig. 143–147.	La f (f V r
400								

* This and the following fig. refer to my work "La Civ

c.		Pottery.			Graves.		Localities.	Remarks.
		Not painted.		Painted.	Unburnt bodies.	Burnt bodies.		
	Serpeggianti.	Impasto italico.	Bucchero.					
	—	—	—	—	Fosse.	—	Palafittes (terramares). Remedello, Cumarola.	—
	—	—	—	—	Fosse.	—	Palafittes, terramares.	—
	—	Rude, made with the hand (not with the lathe). Engraved, geometrical patterns.	—	—	Fosse.	?	Palafittes, terramares, Cascina Ranza, Povegliano.	—
	—		—	—	—	Pozzi.	Palafittes (Peschiera), terramares.	—
."}	—		—	—	—	Pozzi.	Palafittes (Peschiera), terramares.	—
5.	= fig. 218, 219.		—	—	—	Pozzi.	Casalecchio.	—
	= fig. 221.	Villanova - ossuaries, primitive	—	—	—	Pozzi (casse).	Bismantova, Fontanella.	No hut-urns.
=}	= fig. 241, 242.	Villanova - ossuaries. Engraved geometrical ornaments.	—	Geometrical style (very rare).	—	Pozzi (casse).	Bologna (Benacci or Caprara), Este.	No foreign types (or very few).
ut-}	= fig. 244 253.	Villanova - ossuaries. Stamped geometrical ornaments.	—	do. do.	—	Pozzi (casse).	Bologna (Benacci, De Luca), Este.	No foreign types (or very few).
e-n,}	= fig. 272 -275.	Villanova - ossuaries (late forms). Stamped ornaments: geometrical, vegetals, animals, etc.	—	Greek vases, extremely rare.	—	Pozzi (casse).	Bologna (Arnoaldi), Este.	Few foreign types.
=}	late; = fig. 263 (pl. 102, fig. 1). Very rare.	Some imitations of Greek vases (not painted).	—	Attic: black-figured and red-figured.	Fosse, with cists of wood (no camere.)	Pozzi. Fosse, with cists of wood.	Bologna (Certosa), Este, Marzabotto.	A great number of foreign types.

"La Civilisation primitive en Italie."

B.C.	Periods.	Bronze (or Copper) Implements and Weapons.			Iron Implements and Weapons.	Fibulæ.		
		Axes.	Daggers and Swords.	Knives.		Disc.	No Disc.	
							Not serpeggianti.	Serpegg
2100	Bronze Age. I: 1	= NORTHERN ITALY.						
1950	I: 2							
1800	II							
1650	III: 1							
1500	III: 2							
1350	IV: 1							
1200	IV: 2							
1100	Proto-Etruscan. I	Palstaves, thick.	Swords and daggers in bronze sheaths (South-Italian type).	Round, broad.	Rare.	No (or few) traces of spirals; one traverse.	Short channel.	= fig. 242.
1000	II	Palstaves, large, thick.	Do.	Round, very broad.	Common (swords with bronze handles).	Rare.	Long channel, no button at the end.	= fig. –253
900	Etruscan. I		*		Common.	Very rare; no traces of spirals; two traverses.	Long channel, no button at the end.	= fig. 265.
800	II	—	—	—	Do.	—	Long channel, sometimes with button.	= fig. 269,
700	III	—	—	—	Do.	—	Long channel, with button.	—
600	IV	—	—	—	Do.	—	"Certosa-type," = fig. 137–148.	—
500								

* Very r

	Pottery.			Graves.		Localities.	Remarks.
	Not painted.		Painted.	Unburnt bodies.	Burnt bodies.		
Serpeggianti.	Impasto italico.	Bucchero.					
	Hut-urns.				Pozzi.	Piediluco, Goluzzo, Albano.	—
	Hut-urns. Villanova-ossuaries, primitive.				Pozzi.	Bisenzio, Corneto.	—
=fig.241, 242.	Villanova - ossuaries. Several new types.	—	Geometrical style, pure.	Fosse (camere).	Pozzi.	Bisenzio, Veji, Narce, Corneto, Vulci, etc.	Many new (foreign) types.
=fig.244 –253.	Common. Anforette, with spirals.	—	Geometrical style; with birds.	Fosse, camere.	Pozzi.	Veji, Narce, Corneto (Tomba del Guerriero), Vulci, etc.	—
=fig.264, 265.	Rare.	Engraved ornaments (not made with a cylinder).	Early prekorinthian skyphoi, old, fine; cotyliscoi, aryballoi, only bands.	Fosse, camere.	Pozzi, camere.	Cervetri (T. Regulini-Galassi), Palestrina (T. Bernardini), Vetulonia (T. d. Duce), etc.	Inscriptions (not rare).
=fig.266, 269, 270	Do.	Low relief (made with a cylinder).	Later prekorinthian skyphoi, — aryballoi, etc. (only bands, or with animals). Korinthian, oriental animals (no men).	Fosse, camere.	Tombe a buca, camere.	Veji (Grotta Campana, painted), Narce, Corneto, Vulci, etc.	Inscriptions.
—	Do.	High relief.	Korinthian: men, inscriptions (Amphiaraos). Attic: black-figured style, 1 (François).	Camere.	Tombe a buca, camere.	Narce, Corneto, Vulci, etc.	Inscriptions.
—	Do.	—	Attic: black-figured styles, 2 and 3. Do., red-figured styles, 1 (and 2).	Camere.	Tombe a buca, camere.	Narce, Corneto, Vulci, etc.	Inscriptions.

* Very rare.

north of the Apennines; but we have there a very great number of other tombs with unburnt bodies and a mass of new types, which are not descended from the old types of the Italian bronze age. Some of the new tombs are *fosse*, graves of the same kind as those still in use, and accessible from above; others are *camere*, chambers accessible through an entrance in the side. It is generally supposed that the *fosse* are older than the *camere*, but this is not quite right. It is true that *fosse* belong principally to the first part of the iron age; but it is more than probable that *camere* existed already at the same time as the *fosse*. We remember the round vaulted chambers with a passage leading into them, that belong to the Mycenæan period in Greece. Some graves of the same type have been discovered in Etruria, but unfortunately we know nothing about their contents. The Etruscan tombs of this kind resemble very closely those of the Mycenæan or Tyrrhenian period, in Greece, and as we have no instances of later objects found in the former, it is highly probable that they belong to the very first Tyrrhenian period in Italy.

The fact that the old mode of burial co-existed with the new one can be explained without difficulty. A great number of the old inhabitants had survived the Tyrrhenian occupation and preserved their incineration and their *pozzi*. We find the incineration as a more or less rare exception, throughout all the Etruscan period.

Thus, we understand, that the same types may well be found in some *pozzi*, as in some *fosse*, or in some *camere*. But this is not the rule, and most of the *pozzi* are certainly older than the *camere*. If we consider this, we find also that something quite new must have come into Etruria at the beginning of the iron age; but that meantime the old population long remained in North Italy without any considerable change. In that part of the country no interruption, such as indicates the arrival of the Etruscans, can be traced before the 6th century B.C. Only at that period we have at Bologna new tombs with unburnt bodies and a number of new types.

This agrees fully with the history. Livy says that the Etruscans did not traverse the Apennines and reach to Bologna till long after their establishment in Etruria.

As I hope to show in another paper, the immigration of the new people, the Etruscans, into the country named after them, falls in the 11th century B.C. We know that the first Etruscan sæculum was considered as beginning about 1050 B.C., and the beginning of the first Etruscan sæculum cannot well have any other meaning than the immigration of the Etruscans in the part of Italy where their chronology was indicated by these sæcula.

In the name Tyrrhenoi or Tyrsenoi we have the Greek termination -enoi, and the original word Tyrs or Turs. This is the same name as Turša in certain Egyptian inscriptions of the 14th or 13th century B.C. I think there can be no difficulty in discovering what kind of "peoples from the sea" the Egyptians meant by this name. They were the Tyrrhenians in the eastern part of the Mediterranean. We know that this people lived there before its coming to Etruria, and it is evidently much more probable that the Turša came to Egypt from the Ægean Sea than from Etruria. Moreover, the Tyrrhenians did not exist in Etruria at so early a time as the 13th or 14th century B.C. At that period they lived only in Greece and Asia Minor.

The Tyrrhenians, or Pelasgians, survived a very long time in some parts of Greece. Herodotos[1] states that the isles of Lemnos and Imbros had a Pelasgian population so late as about 500 B.C.; at this time Miltiades expelled them from Lemnos. Now some few years ago a most remarkable inscription was found in Lemnos. The language of this inscription from the Pelasgian Lemnos very much resembles the language of the Italian Tyrrhenians (the Etruscans); the inscription was not written by an Etruscan, but by some one belonging to a nearly kindred people. Thus we have here, firstly, a confirmation of the identity of the peoples denoted by the names Pelasgi and Tyrrhenians, and secondly, a proof that an almost identical language was spoken by the Pelasgians or Tyrrhenians in Lemnos, and the Tyrrhenians or Etruscans in Italy.

We may perhaps understand the Etruscan question better, if we consider it in combination with the other phases of the history of pre-classical civilisation. The Mycenæan civilisation is, in my opinion, a very early phase of the oriental civilisation brought over to Europe; the Etruscan is a later phase of the same civilisation penetrating farther to the west.

But, it may be said, if the Etruscan civilisation is the continuation of the Mycenæan, we ought to find in Etruria a number of types similar to the Mycenæan ones, and such finds are very rare there. It is true that we do not find very often exactly the same types, but some close parallels we *do* find. We have some tombs in Etruria of the same shape as the Mycenæan round vaulted grave-chambers, with a passage leading into them, and the reason why we cannot find in Italy many objects of the same kind as the usual Mycenæan ones, is because these belong mostly to a time anterior to the Etruscan immigration of the 11th century B.C.

We have seen that the later part of the third Mycenæan

[1] Hal. v, 26; vi, 136ff.

style was contemporary with the 15th century B.C., and in the following period the Mycenæan style was decadent, and gave place to the so-called Geometrical or Dipylon style. We find also this Geometrical style represented in the Etruscan finds from a very early date. A most remarkable discovery of that kind was made some years ago in a tomb at Vulci; it is now in the Museum of Berlin, and has been figured for me by the kind permission of Professor Furtwängler.

Pre-classical CHRONOLOGY *in* GREECE *and* ITALY.

By Prof. OSCAR MONTELIUS.

THIS important question cannot well be treated separately for Greece and Italy, both because these two countries have so much in common—a great number of Greek vases and other articles having been found in Italy—and because the archæological material necessary for the solution of that question is for the moment better in Italy than in Greece. We know much more about the contents of well examined tombs of the periods in question from different parts of Italy, than from any part of Greece. For it is not enough for the solution of this question to have a number of antiquities discovered in the same necropolis. We must know what has been found in every grave; and, if more than one deceased has been buried there, as in the case of such chambers as the common Etruscan tombs, we ought to know what has been deposited with every one of them. Antiquities not belonging to tombs must for our purpose have been discovered in such a way as to make it clear that those found in the same place were deposited there at the same time.

Most of the materials from Greece cannot be fully used for such an investigation as the present. The objects themselves give some good hints by their form and ornaments; but the history of the finds is not sufficiently well known. The same may be said of many Italian finds, but a sufficient amount of the Italian material is very good for our purpose.

A careful examination of this material has convinced me that we can establish already a chronological system of very short periods, from the introduction of metals to the beginning of the well-known historical or classical times. The most characteristic types from every period are to be seen in the plates; in the adjoined description I have for each period given notices of the most important types of antiquities and tombs, and have indicated some of the places where the most remarkable finds have been made.

For Northern Italy I have distinguished seven periods of the bronze age, and four periods from the beginning of the iron age to the Celtic occupation.

In Central Italy the evolution during the bronze age was exactly the same as north of the Apennines. But from the beginning of the iron age the history of the civilisation in Etruria is quite different. In Northern Italy all the tombs from the first periods of the iron age (*la prima epoca del ferro*) are of the same kind as those from the last periods of the bronze age; the bodies are burnt in the ones as in the others, and the antiquities from the first iron age are of types forming the direct continuation of those from the preceding period. On the contrary we find in Etruria many graves of new types, with unburnt bodies, and most of the objects deposited with them are of foreign types.

A typological study of those periods proves that every one of them comprises a considerable evolution, consequently every period must have had a considerable length. This is confirmed by the existence *in the same place* of many graves from each period. The types characteristic of each period are very often met with in the same find, but types belonging to different periods are seldom found together, and if this is the case the two periods are *immediately successive*. I know only remarkably few exceptions to this rule.

All this proves that every period must be equivalent at least to a century. If it had been shorter, the remains from different periods ought to have been much more confused.

Thus we can give *the relative Chronology* in the succession of several periods.

Can we also give *the absolute Chronology*? Can we fix for each period the date before Christ? I think we can.

Through the lately finished excavations of Akropolis in Athens, we know which classes of pottery are anterior of the Persian war. The layer of rubbish from the destruction of the citadel in 480 B.C. could easily be recognised; in and below this were found numerous fragments of red-figured pottery, not only of the first style, but also of the second, or fine style.

Many Attic vases of that period bear the artist's name. Some of the oldest red-figured vases are signed by the same artists —Nikosthenes, Hischylos, Pamphaios—who made also black-figured vases of the third style. Epiktetos made some vases with red figures on one side and black figures on the other. Other artists—Tychios, Timagoras, Charitaios—have only signed black-figured vases of the third style. Earlier than those are the black-figured vases of the second style. Two makers of such vases, Ergoteles and Tleson, were sons of Nearchos; a third,

Eucheiros, was a son of Ergotimos. Nearchos has signed black-figured vases of the first style or the beginning of the second style. Ergotimos and Klitias are the artists of the François vase, the most celebrated representative of the first style (Plate XXIX, fig. 4).

Consequently every one of these five groups, two red-figured and three black-figured, must correspond to a period of a considerable length, evidently of about, or rather more than thirty years, which gives to the first style of the Attic black-figured pottery the date of the end of the 7th century B.C. The black-figured vases of the first style must be older than those of the second style, and this second style older than the third. A great number of the black-figured vases of the third style are older than those of the first red-figured style, and these are anterior to the vases of the second red-figured style.

The "Attic François vase" is a little later than the "Korinthian Amphiaraos vase" and the contemporary Korinthian vases with human figures and inscriptions. But these vases are later than the great group of Korinthian vases with oriental animals and without human figures. It is evident that the last named "Korinthian vases" represent a very long time, because a great number of Etruscan tombs—*e.g.* at Vulci and Corneto—have been discovered, which contain such vases, but no vases of later types.

In some tombs the Korinthian vases are associated with so-called proto-Korinthian or pre-Korinthian aryballoi, bombylioi, etc. But these tombs which are chambers contain more than one body, so that it is difficult to decide whether the pre-Korinthian and Korinthian vases were deposited at the same time.

Many other tombs contain such small pre-Korinthian vases without any Korinthian ones. Some of those small pre-Korinthian vases—which evidently belong to an earlier period than the Korinthian—are ornamented with a zone of running animals, not of the oriental type; on the oldest pre-Korinthian vases, only coloured bands are found.

From a still earlier time date the skyphoi of the old, fine style (Plate XXVI, fig. 1), which are not to be confounded with later vases of a similar form.

Thus we can go very far back, but the skyphoi are not the earliest painted vases coming from Greece, or the eastern Mediterranean. To an earlier period belong the vases of the "geometric style" found in Italy; some of them are decorated with a row of birds, generally looking like ducks; the oldest have no such ornament. The vases of the geometric style discovered in Italy belong to the same class as the "Dipylon vases"; some of them are evidently fabricated in Italy, but

others are Greek, and very fine vases of pure Dipylon style have been found in Etruria as well as in Sicily. In Sicily, near Syracuse, Greek vases of the preceding style, the Mycenæan, have also been met with.

We can now very exactly fix the date of the different groups of Mycenæan vases. Furtwängler and Loeschcke have distinguished four such groups; and several discoveries in Greece as in Egypt prove that the later part of the third group—the best known representant of it is the "Bügelkanne," or "false necked vase,"—is contemporaneous with the Egyptian king Amenophis III, who lived in the latter half of the 15th century.

In some Greek tombs, "Bügelkannen" or Mycenæan pottery of the same period have been found together with bronze fibulæ of the Peschiera type. Consequently, these fibulæ date from the 15th century, a fact of the greatest importance for our question.

The Peschiera fibulæ belong to a late part of the III Bronze-period in Central Italy, and the Attic red-figured vases of the second style belong to the IV Etruscan period. Thus we have on the one side a little more than 900 years between the 15th century B.C.—the date of those fibulæ—and 500 B.C.—the date of these vases; on the other side we have nine periods from the beginning of the second part of the III Bronze period to the end of the IV Etruscan period.

Every one of these nine periods has been proved to comprise a considerable time, probably of *about* the same length for each period; thus *every period must have lasted about a hundred years, and correspond to the century indicated in the table* (p. 258).

In some cases we can directly control this result.

The Tomba d'Iside at Vulci, which I consider to date from the second part of the 7th century B.C., contained a scarab with the name of the Egyptian king Psammetik I, who reigned 664–612.

A date for the Korinthian vases is given by Dr. Orsi's careful examination of the necropolis of the Sicilian town Megara Hyblæa, which was destroyed 482 B.C., after an existence of 245 years. Thus it had been founded B.C. 727, and the oldest Greek vases deposited in its necropolis must have been made about the middle of the 8th century, or perhaps a little earlier because the vases placed in a grave generally have been in use for some time before the interment, especially if the grave belongs to one country while the vases have been imported from another. Now the oldest Greek vases discovered at Megara Hyblæa are such pre-Korinthian ones as I have considered to date from the 8th century B.C.

The necropolis of Syracuse has been considered to begin at the same time as that of Megara Hyblæa, because it is

recorded that a Korinthian colony was brought over to Syracuse by Archias in the year 735 B.C. But this does not prove that no Greeks lived at Syracuse before that time. It is never said that the colony of Archias was the *first* Greek settlement at Syracuse, and we know of other places where two Greek colonies came at different epochs. M. Cavallari has also given, some years ago, very interesting reasons for his opinion that there existed a Greek colony at Syracuse before the arrival of Archias; and it has been made quite clear by the careful examinations of M. Orsi that the Greek necropolis of Syracuse begins much earlier than that of Megara Hyblæa. The great difference in the contents of the oldest Greek graves at these two places cannot be explained by the insignificant distance in time between 735 and 727 B.C., the two generally accepted dates of the foundation of Syracuse and Megara Hyblæa.

In Central Italy the proto-Etruscan period begins with the 11th century according to my system. This agrees fully with the date given by the Etruscans themselves of their establishment in Etruria, the first Etruscan sæculum beginning at the middle of that century.

I know very well that my chronology differs considerably from that hitherto generally accepted. But I cannot help it. I will only add some few words about a remarkable find where this difference is striking. The Regulini-Galassi tomb at Cervetri is commonly considered to date from the end of the 7th century; it has even been placed in the beginning of the 6th century. According to my opinion, it belongs to the 9th century; thus the difference is about 250 or 300 years, The reasons for my opinions are summarily these: (1) that the Regulini-Galassi grave is according to me—as to all other archæologists—contemporaneous with the Bernardini grave at Palestrina and the Tomba del Duce at Vetulonia; (2) that these two later tombs contained skyphoi of the old style, but no other Greek vases; (3) that there was found a silver skyphos of the same form in the Regulini-Galassi grave; (4) that consequently these tombs must be older than the small pre-Korinthian and the Korinthian vases. Hence follows: (5) that the Regulini-Galassi grave is *much* older than the François vase, which belongs to the end of the 7th century. On the other hand, the anforette of silver found in the Regulini-Galassi grave is exactly of the same type as the anforette in pottery often found in tombs at Narce and other localities of the first proto-Etruscan period, or the 11th century; and the enormous gold fibula with a large disc and two traverses deposited in the Regulini-Galassi grave is of nearly the same form as the bronze fibulæ with disc and one traverse common in the

beginning of the proto-Etruscan time. The palmettes on the Regulini-Galassi gold fibula are of the same shape as the palmettes in the palace of Assurnazirpal in Nimrud, from the first half of the 9th century. This palace seems to have been restored by Sargon in the 8th century; so that it is difficult to say if the Phœnician cups found in that palace date from the 9th or the 8th century B.C.; they resemble very much —but are not identical with—the silver cups discovered in the Regulini-Galassi and the Bernardini graves.

The silver anforette of the Regulini-Galassi grave, like some other vases in the same grave and in the Tomba del Duce at Vetulonia, bear *inscriptions* in Etruscan letters. Similar inscriptions have also been found on other Etruscan vases from the same period. Thus the art of writing was known—and evidently common—in Etruria already before the end of the 9th century B.C. This result is perhaps astonishing, even shocking, but I cannot see any difficulty in accepting it. Moreover, if the art of writing was known in Etruria in the 9th century, it must also have been known in Greece at the same time. The invention of the Græco-Etruscan alphabet, as an amelioration of the Phœnician one, ought to fall in the 10th century B.C.—if not earlier.

I think that the great difference between my chronological system and the chronology commonly accepted hitherto principally depends upon the following reasons. I have not looked upon one or some few sides of this complicated problem, but I have tried to study every side of it: tombs and other deposits, in Italy and in Greece, pottery and bronzes, personal ornaments, weapons and implements, the evolution of the types and the mode of decoration. I have considered the archæological facts —prehistorical and classical—in Italy, Greece, and the Orient, as well as the hints given by the history. And for the absolute chronology, I am not only going back from the first period which is well known from Greek history. I have also an independent point of departure high up in the pre-classical period, in the 15th century B.C. This makes it possible for me to date all the periods filling up the whole space between that time and the Persian war.

Evidently what I have had the honour to say to-day cannot be the last word in this important and complicated question, but I have thought it to be the best, if some one would risk his neck in constructing a complete chronological system, that can be carefully examined and corrected where it proves not to be all right. Therefore, I now have dared to do so.

Mr. ARTHUR EVANS said the Institute, in company with the Anthropological Section at Liverpool, might congratulate themselves as having been the first recipient of some of the most important generalisations arrived at by Dr. Montelius in his comprehensive study of primitive Italian civilisation. His subdivision of the Italian Bronze and Early Iron ages into a number of distinct chronological periods showed the further application of the principles already so successfully worked out by him in his monograph on the Bronze Age chronology of Scandinavia. Among the general results obtained, none was of greater importance than the demonstration that while north of the Apennines the evolution of forms was continuous down to the close of the Bronze Age, south of this chain there was evidence during the later part of that period of a considerable break in continuity accompanied by the wholesale intrusion of exotic forms. Mr. Evans agreed with Dr. Montelius that many of these new elements might be described as late Mycenæan, and noted that this ingredient was specially observable in the south of the peninsula.

So far as Etruria was concerned, the archæological facts agreed very well with the date assigned by native tradition to the first arrival of the Etruscans or Tyrrhenians in the 11th century B.C. As to the Asiatic origin of the Mycenæan civilisation, however, Mr. Evans was not able to follow the author of the present communications. That there were large Oriental factors as well as Egyptian in Mycenæan civilisation was evident, but it was equally clear that many of its root elements had grown up on Ægean soil. The bee-hive tombs of Asia Minor, so far as they had been described, were later than those of Mycenæ. Like many other comparatively late phenomena there and in Cyprus, they represented a tide of influence from the Ægean side—the Lions of Arslan Kaya, for instance, being a remote echo of those of the Lions' Gate. As far as he knew the earliest bee-hive tombs approaching the Mycenæan type were the rock-cut tombs of the later stone, or Æneolithic, period in Sicily. The relationship in this case pointed rather to a western than an eastern connexion. Inasmuch, however, as Mycenæan culture undoubtedly influenced the Anatolian coastlands towards the close of the Mycenæan period, the question of the ultimate source of that culture did not affect the possibility of Tyrrhenian emigrants from that quarter having in the 11th century B.C. imported certain late Mycenæan elements into Italy.

That the Tyrrhenes were the Turshas of the Egyptian monuments, and as such closely connected with various peoples of primitive Greece, the Ægean islands, and the western coastlands

of Asia Minor, seemed a most probable conclusion. As to their exact relation to the Pelasgians, however, the evidence seemed to lack precision. Neither did there seem any sufficient reason for confining to this Tyrrhenian element the late Mycenæan influence on primitive Italy. Mr. Evans himself believed that he had found conclusive evidence that the early Roman traditions of an Arcadian settlement covered a historic fact, and were accompanied by unmistakeable traces of religious beliefs common to Mycenæan Greece.

One part of Dr. Montelius' conclusions was nothing less than revolutionary. This was his deliberate expression of opinion that the Regulini-Galassi tomb at Cervetri, and other typical deposits of the same character, such as the Bernardini tomb at Palestrina, the Tomba del Guerriero at Corneto-Tarquinia, and the Tomba del Duce at Vetulonia must be referred, not as hitherto generally believed, to the end of the 7th or even to the 6th, but to the 9th century B.C. This view, if accepted, must wholly change the received chronology of the Early Iron Age remains of Italy; but startling as it was, coming from such a high authority, who adduced in its support a whole series of parallel data, it deserved the closest attention. Mr. Evans confessed that personally he had long viewed the comparatively late date assigned to this most important group of interments with the greatest suspicion. It had indeed seemed to him quite irreconcileable with certain phenomena presented by them, such as the occurrence of small silver amphoras identical with vases found in well tombs or *pozzi* of early type, such as those of Albano.

A grave difficulty was indeed suggested by the occurrence in these tombs of inscribed objects with Etruscan as well as Phœnician characters. Dr. Helbig—from the fact that exact reckonings of the Etruscan *sæcula* (the length of which was, determined by the longest life in each) only begin with the 5th century in 644 B.C.—had deduced the conclusion that the introduction of writing must have taken place at some date between the beginning and end of the century preceding this. Moreover, the Chalkidian origin of the Etruscan alphabet was generally recognised, and Cumæ—the earliest Chalkidian colony in Italy—was, according to the received date, founded in 730. From these grounds Helbig had deduced the conclusion that the knowledge of letters could only have reached the Etruscans about the middle of the 7th century.

In answer to this Dr. Montelius brought forward the alternative statement that Cumæ was founded in 1049, but, even if such an early date for a Chalkidian colony could be substantiated, it would be none the less a remarkable phenomenon

to find a whole series of Etruscan inscriptions earlier by at least two centuries than the earliest records of Chalkidian writing in Italy.

It must indeed be remembered that the Etruscan alphabet contained some very archaic forms, and that a comparative study of the Greek and Phœnician alphabets showed that certain Greek letters must have been taken over at an earlier date than that of the Moabite Stone, which belonged to the beginning of the 9th century B.C. But, admitting all this, was it probable that these Etruscan inscription—themselves derived from the Greek and only at second-hand from the Phœnician—could go back, as was required by Dr. Montelius' system, approximately to the date of the earliest known Phœnician inscription? In this group of Etruscan deposits with which he was dealing, Phœnician inscribed objects also occurred, but the letter-forms on these were of a later type than that of the Moabite Stone, and had indeed been compared by Semitic epigraphists to those of the Assyrian tablets of the 7th century B.C. In Mr. Evans' opinion the Etruscan letters were the outcome of a growing commercial contact with Greece which culminated in the actual colonization of South Italy, and in this case the first appearance of Etruscan inscribed objects might be more or less contemporaneous with the first period of Greek settlement in the last half of the 8th century.

He could not agree with Dr. Montelius that a comparative study of the relics from the early cemeteries of Syracuse and Megara Hyblæa necessarily involved the conclusion that the Greek settlement at Syracuse took place much earlier than at Megara. The weight of historic evidence was decidedly against this, and it might very well be that the earliest colonial tombs of Megara Hyblæa still remained to be discovered. But the pre-Hellenic tombs of that part of Sicily bore witness none the less to a continuous commercial intercourse between the Sikels and the early inhabitants of Greece from Mycenæan times onwards. These pre-colonial influences might, as already suggested, explain some of the Etruscan phenomena.

In conclusion, Mr. Evans said that though in his opinion Dr. Montelius was right in protesting against the unduly late date assigned to this interesting group of Etruscan and early Latin tombs, he personally felt himself unable to move up their chronology beyond the latter half of the 8th century B.C. There were indeed in these deposits certain metal work reliefs, as for instance a silver sheath from the Bernardini tomb at Palestrina, which must, he thought, be regarded as imported articles from Greece, and which answered to the style of the figured representations on some gold bands and diadems found in the

late Dipylon tombs at Athens, and containing vases of the style which immediately preceded the "Early Attic." The associations in which these objects were found at Athens tended to show that they belonged to the 8th century B.C., and they seemed to him to be of capital importance in dating the group of Italian deposits then under discussion.

Mr. J. L. MYRES said that the account given by Dr. Montelius of the Tyrrhenians in Italy, as having entered Etruria from the sea, at or about the date indicated by the Etruscan era, quoted by him, would seem to give an intelligible explanation of many points in the history and civilisation of that people, more especially as their movement westwards may thus be closely connected with the series of movements of maritime peoples in Ægean and Libyan waters, of which the Egyptian record gives us more than one glimpse, and which Greek tradition vaguely remembered under the name of the Sea-Empire of Minos.

But Dr. Montelius did not bring clear evidence in support of his theory that, not the Etruscan civilisation only, but also the Mycenæan (to which he rightly affiliates it) can be traced back to a common origin in Asia Minor.

The hypothesis of Drs. Koehler and Dümmler, that the Mycenæan peoples in Greece and the islands of the Ægean emanated from Karia, was published about ten years ago, at a time when only literary and traditional evidence was available, and Karia itself was practically unexplored.

Unlike Milchnoefer's equally hypothetical suggestion of a *Cretan* origin, the "Karian theory" has not been borne out by subsequent research on the Karian coast. We are now in a position to state that whereas Mycenæan settlements exist in almost all the islands which fringe that coast, they have been looked for in vain on the mainland, and it is now practically certain that Karia, so far from contributing anything to the Mycenæan civilisation in its rise, or at its culmination, did not even begin to feel the influence of that most contagious culture, until the period when geometrical ornament had succeeded naturalistic, and the fibulæ were already well bowed, like the earliest types from Olympia, and from sub-Mycenæan sites in Cyprus. Similarly in Lydia, the evidence is at present all in favour of late Mycenæan importations into a comparatively barbarous area, and against any theory of an emigration of culture from the mainland into the Ægean.

The only period at which adventure and emigration from Karia and the neighbouring coast can be traced is in the period which definitely succeeds the Mycenæan age; it is asserted both by Greek tradition, and by such finds as the Karian

graffiti at Abu-Simbel in Egypt; and can thus be dated between the 10th and the 7th centuries B.C.

With regard to the Tyrrhenians themselves, it is not improbable, as Dr. Brinton has argued on philological grounds, that their nearest connections are among the Berber races of North Africa. They are represented throughout in Greek historical tradition as the associates, in commerce and piracy, of Carthage in the 6th and 5th centuries B.C., and some of the types of pottery from recent excavations at Carthage would seem to carry a similarity of culture up to the 8th or early 7th century.

Dr. Sergi's theory of a Lydo-Tyrrhenian emigration of "belated Pelasgians" (*Pelasgi tardivi*), as indicated on the sketch map in his last paper,[1] resembles that of Dr. Montelius, but as Dr. Sergi has not clearly indicated the date at which he supposes the migration to have taken place, it would be premature to examine it by historical, or archæological criteria; but, for the reasons already stated, it can hardly be dated later than the *pre*-Mycenæan age.

Professor RIDGWAY expressed his satisfaction at finding that the view of which he had given a brief summary in the "Academy" in July, 1895, and which he had published at length in the "Journal of Hellenic Studies" (April, 1896), had the support of two of the most distinguished living archæologists, Professor Montelius and Mr. A. J. Evans. He proceeded to show that whilst the Mycenæan age was that of bronze, the Achæans of the Homeric poems were in the iron age. He pointed out that the Achæan civilisation coincided with that of the Halstadt period. The graves at Glasinatz in Bosnia disclose a people who used iron for their cutting implements (swords, knives, spears), as did the Achæans; they had bronze helmets and greaves, thus corresponding to the "brazen-greaved Achæans"; they had shields with bosses such as those mentioned in Homer; they had no engraved stones, but only had amber and blue glass for ornaments, again agreeing completely with the Achæans. He hoped to show in a forthcoming volume that the Achæans had passed into Thessaly from Epirus, the very region where such remains as those at Glasinatz were now being found.

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[1] "Origine e Diffusione della Stirpe Mediterranea Roma," 1895.

The BŪRBŬNG *of the* WIRADTHURI TRIBES. (Part II.)

By R. H. MATHEWS, L.S.

IN a former communication[1] to the Anthropological Institute, I described the Būrbŭng of the tribes belonging to the Wiradthuri community occupying that part of New South Wales watered by the lower portions of the Macquarie, Castlereagh, and Bogan rivers, with their affluents and branches. As I had to abridge that article in order to keep it within reasonable limits, I stated that on a future occasion I would prepare a supplementary paper describing the most important parts of the ceremonies in a more extended form.[2] In fulfilment of that promise, the present article has been prepared, in which I shall deal with the Wiradthuri tribes spread over the upper portions of the rivers above mentioned, extending southerly to the dividing range between the Lachlan and Murrumbidgee rivers, including within that area the tribes resident on the upper part of the former river and its numerous tributaries.

In my original communication, the manner of summoning the several tribes to attend the Burbung,[3] and their arrival at the main camp[4] was explained, the Burbung ground with its imagery and surroundings was carefully described,[5] the preliminary daily performances at the ring were particularly detailed.[6] It will be unnecessary, therefore, to include any further information respecting these parts of the ceremonies in the present paper. In the following pages I shall endeavour to more fully describe the manner of removing the novices from the main camp, and to supply comprehensive details of the important secret ceremonies in the bush, these divisions of the subject having been rather briefly defined in my former memoir.

Taking away the boys.—During the night preceding the taking away of the novices,[7] considerable sexual license is allowed between the men and women, whether married or single. This liberty is accorded only to those parties who would be permitted to marry each other in conformity with the tribal laws, but would not be extended to the novices. The next morning all

[1] "The Būrbŭng of the Wiradthuri Tribes," "Journ. Anthrop. Inst.," XXV, 295–318.

[2] "Journ. Anthrop. Inst.," XXV, 297.

[3] *Loc. cit.*, 303–305.

[4] "Journ. Anthrop. Inst.," XXV, 305–307.

[5] *Ibid.*, 299–303.

[6] *Ibid.*, 307.

[7] As stated in my former paper, the time for taking the novices away from the camp is fixed by the headmen, after the arrival of all the tribes who are expected to be present at the ceremony. "Journ. Anthrop. Inst.," XXV, 307.

the men commence shouting before daylight, and as soon as it is clear enough, every one in the entire camp shift up close to the ring.[1] Some men cut bushes and bring them alongside for use in covering the women presently, and rugs and blankets are also gathered out of the camp for the same purpose. Every novice had a guardian[2] assigned him by the headmen, such guardian being selected from among the initiated men of the class and totem with which the novice was entitled to intermarry. These guardians did not act openly, because the women were present, and they did not wish the latter to know that they were taking a prominent part in the proceedings, but got some of their brothers, who may be called their assistants, to act for them until the women were covered up. Each assistant took his novice in charge and invested him with all the articles comprising the dress of a man of the tribe. This dress consisted of a girdle round the waist, under which were inserted four kilts or tails (*burran*), one of these tails hanging down in front, one behind, and one on each side. A net band was fastened round the forehead, and a somewhat similar band around each of the upper arms. Coloured feathers of the cockatoo and other birds were inserted in the boys' hair.[3]

The sisters of the novice and those of the guardian now painted him red all over his body and limbs, after which a brother of the guardian led him into the ring and placed him sitting down on some bark close to the embankment forming its boundary. The novices belonging to each tribe were kept in a group by themselves, all having their heads bowed down, on the side of the ring nearest to their own *ngooranbang* or country.[4] The mothers of the novices are now brought up and are placed sitting down in a row just outside the embankment bounding the ring,[5] each mother being immediately behind her son. She sits in such a position that she can hold in her hand the tail which is attached to the left side of her son's girdle.

To make the position of the boys and their mothers more clearly understood, we will suppose that the tribe from Cowra, on the Lachlan river, are present. All the Cowra novices would be placed sitting in a row within the embankment, on the side of the ring nearest Cowra. The mothers of the novices would be just outside the ring; their female relatives would be just behind the mothers, and all the other Cowra women and

[1] See Plates XXV and XXVI, of my first paper, and the descriptions of them. "Journ. Anthrop. Inst.," xxv, 299–303 and 314–315.
[2] "Journ. Anthrop. Inst.," xxv, 308.
[3] *Loc. cit.*, 308.
[4] *Loc. cit.*, 308.
[5] The boundary of the circle is generally formed by a raised earthen embankment. *Loc. cit.*, 299, *note* 1.

children would be farther back. The novices belonging to each of the other tribes present, and their female relations, would be similarly placed in groups by themselves at different places around the circle.

All the women and children are now directed to lie down, with their faces turned away from the ring, and a number of the men proceed to cover them over with the rugs and bushes which they have in readiness. These men, with spears in their hands, then watch the women to see that the covering is not interfered with.[1] Little children, who cannot speak, are not covered up, but are allowed to remain standing or sitting among the women, because they are not able to report anything which they may see.

When all these preliminaries had been satisfactorily arranged, the headmen gave the signal, and two men commenced vigorously sounding bull-roarers close at hand, in the direction of the goombo; and several men came along the track from the same direction, each man carrying in one hand a piece of bark, called *munga*, previously described.[2] These men entered the ring through the opening[3] in the bank, and ran round, hitting the ground heavily with the pieces of bark referred to, but not uttering any exclamation, and then withdrew. The other men standing about the ring shouted, and during the combined noise of the bull-roarers, the shouting, and the beating of the ground, each guardian came forward, and caught his novice by the arm[4] and led him with downcast eyes out of the circle and along the track. The headmen, and most of the young fellows officiating in the ceremonies at the ring, also went with them.

During the din and clamour produced at the ring while the novices are being taken away, some of the men pick up a few articles belonging to the women, such as dilly-bags, yamsticks, or the like, and scatter them about.[5] Fire-sticks are also thrown close to where the women are lying, to impress them with the prejudice which Dhurramoolun is said to have against womankind. Some of the men who are standing around take up some of the little children, who are not old enough to talk—and cannot therefore report anything to their mothers—and mark their bodies with a few spots or stripes of paint, the women being led to believe that the evil spirit did this when he was taking the novices out of the ring.

When the guardians and novices are out of sight, the men take the covering off the women and children, who then get up

[1] "Journ. Anthrop. Inst.," XXV, 308.
[2] *Loc. cit.*, 308, Plate XXVI, Fig. 40.
[3] *Ibid.*, 299.
[4] "Journ. Anthrop. Inst.," XXV, 308.
[5] *Loc. cit.*, 308.

and look around.[1] They all feel more or less awe-struck, particularly the young women and children who have never been to a Burbung previously. The scene before them—the deserted ring, the burning sticks, and their own effects scattered about, has a very depressing effect upon their feelings, which usually finds vent in cries and lamentations, especially among the mothers and sisters of the novices.

As the novices rise to their feet at the time they were taken away from the circle, the tails (*burran*) which were held in their mothers' hands, as before stated, separated from their girdles. These tails were taken possession of by the mothers, and will be returned to their sons later on.

When the excitement has subsided, all the women and children belonging to the different tribes present in the main encampment, pack up their effects, and with the help of a few of the men of each tribe who have been left with them, they start away and form another camp at some place which has been determined by the headmen, where they take up their respective quarters in accordance with their usual custom of each tribe occupying the side nearest their own country.[2] This new camping ground may be only a short distance off, or it may be several miles, according to the requirements and conveniences of all the tribes present at the ceremonies.

Ceremonies in the Bush.—As before stated, the guardians have taken the novices out of sight along the track leading to the sacred ground. They march on past the image of Dhurramoolun, the marked trees, and the goombo, the novices not being allowed to see anything, but are obliged to keep their eyes cast upon the ground at their feet. When they get a little way beyond the goombo,[3] the novices are placed lying down on their sides on the ground, and a rug thrown over each of them, where they are kept for a short time, perhaps a quarter, or half an hour. This stoppage is made for the purpose of allowing the *kooringal*[4] and other men who intend going into the bush with the boys, to collect their weapons and other things, and get ready generally. Every man of the *kooringal* paints himself with powdered charcoal, or burnt grass, mixed with grease, which gives their bodies a shiny black appearance.

When the men overtake the boys at this halting place, a number of the *kooringal* go a few paces away, and sitting down,

[1] "Journ. Anthrop. Inst.," xxv, 308.
[2] *Loc. cit.*, 308, 309.
[3] "Journ. Anthrop. Inst.," xxv, 309, Plate XXV, No. 13.
[4] The *kooringal* are a band of warriors and athletes who accompany the guardians into the bush, and assist the chief men to carry out all the formalities of initiation. "Journ. Anthrop. Inst.," xxv, 328.

commence hitting the ground with the palms of their open hands. They have small twigs and long grass fastened in their hair, to give them a ludicrous appearance. The novices are then helped to their feet, and the rug adjusted on the head of each in such a way that a small opening is left at the face to allow of the boy seeing the ground at his feet as he walks along with his head bent down ; he could also see anything he was directed to look at. The guardians explain to the novices that they will not be permitted to speak, or to laugh at anything that may be shown them in the bush ; that they must pay great attention to everything that is said or done, and not be afraid. Their faces are now turned towards the men who are beating the ground, and they are directed to raise their heads and look at them for a few minutes.

The guardians now bend down the heads of the novices, and conduct them into the bush to a place which had previously been agreed upon by the headmen.[1] Such a camp would be in the proximity of a creek or waterhole, and where there was plenty of wood for fuel. On arriving at the appointed place, a camp is selected for the novices, and they are placed lying on the ground, the rugs remaining on their heads. The men camp close to them, and prepare a corroboree ground by removing all loose rubbish from the surface of a level spot near the camp.

That night, shortly after dark, the *kooringal* muster on the cleared space referred to, on the other side of the fire at the men's camp, and play the wood-duck. The boys are brought out of their own camp, and are placed sitting in a row on the other side of the fire. The *kooringal* walk past the fire flapping their hands on their hips, and imitating the quacking of the wood-duck. When they have all passed into the darkness, they return past the fire in the same manner into the darkness on the other side. This is repeated for some time, when the novices are again taken back to their own quarters by their guardians, who camped with them, and everyone retired to rest for the night.

An hour or two before daylight next morning, all hands are roused by the headmen. All the people are now divided into little mobs or groups, each of which proceed in different directions, going about a hundred yards from the camp where they had been all night,—which, for convenience of reference, may be called "No. 1 camp." The distance which each group goes from the camp need not be equal, but is regulated by the suitability of the ground. The novices, each having his guardian with him, are taken away in these mobs,—some going

[1] "Journ. Anthrop. Inst.," xxv, 309.

with one group, and some with another.[1] Some of the groups would perhaps have no novices with them. Each of these groups light a fire at the place where they halt, and remain there till about daylight or sunrise, and have breakfast there.

All these little mobs then re-unite, and clear another corroboree ground a little way from the one they prepared the previous evening at "No. 1." On this new corroboree ground the *kooringal* play the porcupine, imitating that animal before the boys, who are ranged on one side, and are directed to look at the performance. The guardians then take the novices back to the little camps they had severally come from, and remain there with them. During the day the painting on the bodies of the novices is carefully renewed. As the novices are not permitted to speak, if they require anything they must make signs to their guardians. If a boy wants to attend to any necessity of nature he is taken about ten paces away from the camp, where the guardian digs a hole for the purpose, which he again fills up with earth after it has been used.

The *kooringal* and other men who may be accompanying them then go out hunting to obtain food for the novices and their guardians. On returning late in the afternoon with the game caught during the day, some of it is cooked by the *kooringal* for the novices. The bones and sinews are taken out of the meat which is prepared for them, and is taken to them by their guardians. Some of the old men go round to see that the novices' food is dressed and cooked according to rule. When the groups of men and boys have partaken of the evening repast, they are all mustered together again, and go to "No. 1 camp," that is to say, the same place where they camped the previous night, the novices and their guardians going into their own quarters as before.

Some time after dark, the novices are brought out to one side of the camp fire, and several of the *kooringal* men climb up a tree growing close by, some going into one branch and come into another. They then imitate the noise made by opossums, and micturate down out of the tree, representing a habit of that animal when it first goes out of its hole on to a branch of a tree. The men then come down out of the branches and run along on their hands and feet past the camp fire, which finishes the performance.[2] The boys are taken back to their camp, and everyone—men and boys—go to sleep.

[1] Each of these little camps is called a *bunbul*. Every novice is taken away from "No. 1 camp" to a *bunbul* situated in the direction opposite or contrary to that of his own country.

[2] Although I have mentioned only one play in the morning and one in the evening, there may be two or more different performances in succession each time. This applies to every day's proceedings.

Next morning, before daylight, all hands are roused up, and radiate away from the camp in little groups as on previous occasions, but going to new places. After breakfast, another patch of ground is cleared and the *kooringal* play *Dhoondhoo*, or black swans. They have grass and bushes tied in their hair, and walk past abreast, imitating the waddling gait of swans, the boys looking at them as usual. The *kooringal* then go out hunting, and the novices, with their respective guardians, go back to the small camps they were taken to in the early morning. On the return of the hunters in the afternoon, food is prepared and given to the novices in the usual manner, after which the whole assembly go into their old quarters at "No. 1."

A little while before sundown the bull-roarer was sounded somewhere close at hand, and the old men gave each novice some human excrement which they were compelled to eat.[1] During the evening some urine was collected in a coolamin, and given to the novices to drink when they were thirsty. It may be mentioned here that all the plays and other performances of the *kooringal* while out in the bush with the boys contain many obscene gestures and filthy practices; and it is remarkable that we find exhibitions of a somewhat similar character among the customs of other savage races[2] in different parts of the world.

The following morning, an hour or two before daylight, the old men call up the entire camp, which is again divided into little groups who radiate round the main camp as on the previous morning. On this occasion, however, these groups do not go to the same spots as before, but each little mob selects a fresh place at which to light their fire, and remain till daylight. After breakfast another new corroboree ground is prepared and the boys brought into it. The *kooringal* play *gummar*, or a windstorm; they go along one after the other, shouting and breaking down saplings and pulling up smaller bushes by the roots. After this the guardians and boys divide into groups and go back to their little camping places, and the *kooringal* and other men again go out hunting, and return to the camp early in the afternoon.

The remainder of the day should be devoted to the extraction of one of the central upper incisor teeth[3] of each novice, but this custom has of recent years fallen into disuse owing to the occupation of the country by the white people. Two of the old headmen, however, gave me the following account of the process,

[1] "Journ. Anthrop. Inst.," xxv, 312; *ibid.*, vii, 252; "Journ. Roy. Soc. N.S. Wales, xxviii, 103-104; "Kamilaroi and other Australian Languages," 154-156.

[2] For particulars of the use of human ordure and urine on festive and ceremonial occasions, the reader is referred to Capt. J. G. Bourke's valuable book on the "Scatalogic Rites of All Nations" (Washington, 1891).

[3] "Journ. Anthrop. Inst.," xxv, 312.

illustrating their verbal descriptions by making holes of the required size in the ground, and placing themselves in proper attitudes. There was a small cleared space close to the camp, in which were made a row of double holes, varying from 6 inches to a foot deep, the number of the pair of holes equalling the number of the novices. In these the feet of the novics were put to prevent struggling, but the loose earth was not filled in around the foot. Each novice sat on the knee of one of the men, while another stood behind with one hand over the eyes of the novice—the other hand holding his chin to keep the mouth open. The principal headmen stood by, giving the necessary directions. When all was ready, the man who was to knock out the tooth stepped forward, bearing in his hands a mallet and a small wooden wedge, which was driven between the teeth for the purpose of loosening them, after which the tooth was knocked out by placing the wooden chisel against it, and then giving it a smart tap with the mallet. The tooth was either pulled out of mouth with the fingers, or was spat out, but the blood was swallowed. The foot holes were then filled up, and the novices were taken back to the camp.

That night at "No. 1 camp," instead of imitating an animal, the performance consists of the *kooringal* pretending to quarrel about something.[1] Loud recriminations are indulged in, and the men shake their weapons, as if going to engage in immediate combat. This is done to intimidate the novices, who are lying down, covered over as usual. After peace has apparently been restored, a number of the *kooringal* stand round each novice in succession.

On the following morning, as usual, about an hour or two before daylight, the old men awaken the entire camp, which is again broken up into small segments, each segment going away in different directions, and forming new camps, as before. As soon as the morning meal has been disposed of at these scattered camps, all the novices are mustered, and put standing in a row on the side of a freshly cleared space, near No. 1 camp. They have the rugs over their heads, and their eyes cast down in the usual way. About twenty men of the *kooringal*, painted black with charcoal and grease, and having small green bushes, and bunches of grass fastened in their hair, are sitting in a row in the cleared space, opposite to the novices. Each man has a piece of bark, *munga*, in one hand, similar in size and shape to the bark used in beating the ground at the ring, the morning the novices were taken away.[2] At a given signal from the headmen, who are standing close by, the *kooringal* commence

[1] "Journ. Anthrop. Inst.," xxv, 310.
[2] *Loc. cit.*, 311.

hitting the ground in front of them with the *munga*. At the same time bull-roarers (*mudjeegang*),[1] were sounded by two men who were standing in the clear space behind the *kooringal*. The guardians then raise the novices' heads, and opening the rugs at their faces, tell them to look at the scene before them. A number of men now step out behind the *kooringal*, who are sitting down beating the ground. Each of these men has a boomerang in one hand and a bunch of grass in the other, and after swaying their bodies to and fro for a short time, they all simultaneously throw their boomerangs over the heads of the novices. As soon as this is done, the guardians lift the blankets off the novices' heads,[2] and they are thus freed from being covered any more in this way. Several of the *kooringal* now rush up in front of each novice, with spears and other weapons raised in their hands, and threaten them that if they ever reveal what they have now been shown, to the women or the uninitiated, they will be killed without mercy. Several tails (*burran*) are now fastened by the guardians to the hair of the head of each novice, some hanging down behind, and others at the sides. The chisel and mallet with which the tooth was knocked out are shown at this time.

When these formalities are over, the novices and their guardians go out hunting with the *kooringal*, the boys being permitted to join in the exploits of the chase, the only restriction being that they must not look behind them, or on either side. On getting in sight of "No. 1 camp" when returning late in the afternoon, each guardian breaks a large bush which he hands to his novice, who holds it with folded arms against the front of his body, and marches on with his head bowed towards his breast. When the novices get into camp, each boy puts his bush on the ground, and sits down upon it. The game caught during the day is cooked, and that which is intended for the novices is dressed in the usual manner, by removing all bone and sinew from it. There is no performance at the camp fire that night, and all betake themselves to slumber as early as they can.

Return of the boys.[3]—An hour or two before daylight next morning, the assemblage is once more scattered into little groups as on previous occasions, and three of the *kooringal*

[1] "Journ. Anthrop. Inst.," xxv, 308.

[2] *Loc. cit.*, 311.

[3] In my original paper on the Būrbŭng, "Journ. Anthrop. Inst.," xxv, 296, I stated that in consequence of the numerous particulars to be taken down, some omissions or errors of detail might have crept in. I now find that a few of the ceremonies in the bush were not given in their proper sequence. The novices were shown the bull-roarer, and were named, during their first term in the bush before their return to the *thurrawonga*.

start away towards the place to which the women had removed the camp from the Burbung. The remainder of the men now pack up everything belonging to them, and after breakfast all the little groups again re-unite as usual. A start is then made towards the women's camp, hunting as they go, to provide food. Early in the afternoon they arrive at a waterhole, where a halt is made, and all the men go into the water and wash the black paint off their bodies, the novices sitting on the bank as spectators, towards whom the men splash water with their hands, and then come out of the waterhole. At this halting place, the men and boys have all the hair singed off their bodies, and the ends of the hair of their heads is singed to make it shorter.

Preparations are now made for resuming their journey towards the *thurrawonga* camp. The novices are decorated with spots of pipe-clay on top of the red ochre with which the whole of their bodies have been kept painted every day while they have been in the bush. The spots or daubs of pipe-clay referred to are put on the faces, breasts, and arms of the novices. The men are also painted, and both they and the boys wear their full dress.

Having proceeded some distance, another stoppage is made, and some of the old men who are related to the novices present call each boy out and give him a new name, by which he shall be henceforth known among the initiated men of the tribe.[1] The novice stands with his guardian, and when the name is announced the men raise a shout. The *kooringal* then again caution the neophytes not to reveal what they have seen to the women or the uninitiated, or they will be punished with death. While they are repeating this caution they hold in their hands spears and tomahawks, and step up quite close to the novices in a threatening attitude.

The three men before mentioned who started away before daylight went back to the new camp erected by the women. On arriving there, and having some conversation with the old men who had remained with the women, they put up a yard called *thurrawanga*,[1] for the purpose of receiving the novices on their return that evening. This yard resembles a semicircle in shape, and is built of forks and bushes laid as a fence, the convex end facing in the direction from which the novices are expected to arrive. It is about 40 feet across the open end and about 30 feet in the other direction, the height of the bough wall being about 4 or 5 feet. Near the farther end of this partial enclosure some sheets of bark are laid on top of logs and bushes, forming a platform of sufficient length to provide sitting room for the number of boys who are to be operated upon.

[1] "Journ. Anthrop. Inst.," xxv, 310.

When the *thurrawanga* is completed, one of the three men before mentioned starts away to inform the *kooringal* that all is ready. He meets them somewhere on their march a little while before dark, and remains with them. They so regulate their progress that they may reach the appointed place an hour or two after dark. When they get within hearing distance, they commence to whistle and clap their hands together as they walk along through the darkness, and the women whistle in reply and give an occasional shout.

About dark the mothers of the novices, having their bodies painted and wearing ornaments in their hair, repaired from the general camp to the *thurrawanga*, accompanied by the two old men who had erected it; the other men who had been in the women's camp during the absence of the boys are also present. These people light a fire in the open end of the *thurrawanga*, and the mothers of the boys stand in a row a few paces outside, facing the fire. Each woman has beside her a spear sticking in the ground, on the upper end of which a tail, or *burran*, is fastened; the spear is ornamented with stripes of white and red paint, and the *burran* is coloured with red clay. She is also provided with a small quantity of pipe-clay and a boomerang painted with red and white stripes.[2]

When the procession from the bush get close to the *thurrawanga*, a bull-roarer is sounded in the rear, and the novices are taken on the men's shoulders and carried into the enclosure, where they are placed sitting down on the platform. The mother of each novice now steps forward and squirts pipe-clay out of her mouth over his face,[3] and at the same time taps him lightly on the breast with a boomerang which she holds in one hand. She then hands a spear, with a tail (*burran'*) fastened to one end of it, to the guardian, who gives it to the novice. This is the *burran* which was left in the hand of the mother the morning her son was taken from her at the ring. The mothers then go away and proceed to their own camp.

Generally speaking, the novices and their guardians stop in the *thurrawanga* during the remainder of the night;[4] but if it has been found necessary to erect it too close to the women's camp, the guardians and boys remove to some suitable place a little farther off. Most of the single men camp with them, but the married men go away to the women's camp.

[1] "Journ. Anthrop. Inst.," xxv, 309.

[2] Sometimes, instead of the boomerang, the mothers have a piece of bark, *barrang barrang*, about the same size, slightly scorched in the fire, so that it will show the marks of pipeclay, with which it is ornamented.

[3] "Journ. Anthrop. Inst.," xxv, 310.

[4] *Loc. cit.*, 310.

Next day the boys are taken by their guardians and such of the *kooringal* as have remained with them, a few miles into the bush,[1] no women being allowed near them, where they gain their own living by hunting such animals as have not been prohibited as food. On the afternoon of the third or fourth day, the novices are painted red all over, with spots of white, as on the occasion of their return to the *thurrawanga*, and a start is again made towards the women's camp, which was removed to another place on the morning following the return of the boys. There another semicircular platform has been erected by the men, in close proximity to the camp. It is constructed in a similar way and is about the same size as the enclosure previously described, but on this occasion its open end faces the direction from which the novices are to approach. Around the back wall of the interior of this enclosure, a platform was erected by placing pieces of bark on top of logs and bushes like the other platform, except that this one is higher. On this platform were laid dilly bags belonging to the mothers of the novices who were to come in, one bag for each boy. A fire was then lighted in front of the semicircular enclosure and a number of green bushes were cut by the men, and placed close at hand for use presently.

About an hour or two after dark the contingent from the bush make their appearance. The novices, accompanied by the guardians walking beside them, now advance towards the fire, a number of men marching behind them, beating boomerangs, or other weapons together. The mothers of the boys are standing near the fire, and when they see the boys coming forward, they throw some of the bushes upon it. The guardians and novices then walk quite close to the fire, some of them standing on the green bushes, and the smoke ascends up around them all. As soon as they are sufficiently smoked, they walk into the enclosure, and are conducted by their guardians to the platform and placed sitting down, each beside the dilly bag belonging to his own mother.

In the meantime all the men present have been smoked in a similar manner by the women at the fire, more green bushes being added as required. When the novices, and all the men who have been out with them in the bush, have been smoked in this way, the women go into the enclosure.[2] Each mother then advances and taps her son on the shoulder with her open hand, at the same time laying some food on top of the dilly bag beside him, which he takes and puts into the bag. The mothers would then go away to their own camp, and the boys

[1] "Journ. Anthrop. Inst.," xxv, 310.
[2] *Loc. cit.*, 311–312.

with their guardians would remain in the enclosure for the night. Next day they are brought into the single men's camp, but are not allowed to mix with the women or children. This being the last ceremony necessary to admit the novices to the privileges of probationers,[1] all the tribes assembled from the other districts return to their respective homes.

Conclusion.—In this, as well as in other papers on the initiation ceremonies of the Australian aborigines, it will be observed that I have confined myself as much as possible to descriptions only. Considerations of space have compelled me to omit many particulars which I could have wished to include, and to abbreviate others which I should have liked to describe more in detail; but it is hoped that the information which I have collected will be found sufficiently full for purposes of comparison with similar rites celebrated in other parts of Australia. I have in my note books a mass of information gathered from the headmen of various tribes, with whom I have been in conversation, bearing on the reason of many parts of the ceremonies, and their meaning, which will be dealt with in another paper on a future occasion.

The Wiradthuri community occupied a wide tract of country in the interior of New South Wales, commencing near the Barwon river, and extending thence southerly to the Murray. My two papers on the Burbung will be found to contain, in a condensed form, the initiation ceremonies practised throughout this vast area; there are local differences in the mode of carrying out the details, but the essential parts of the rites are substantially the same.

Owing to their class and totemic divisions, the Wiradthuri tribes are ranked with those forming what has been called the "Kamilaroi Organisation," for particulars of which the reader is referred to my paper on "The Kamilaroi Class System of the Australian Aborigines," published in the "Proceedings of the Royal Geographical Society of Australasia," Queensland Branch, vol. x, pp. 18–34.

Adjoining the Wiradthuri community on the south-east, and extending thence to the Pacific Ocean, are a number of tribes spread over the coastal districts of New South Wales from about Twofold Bay to Sydney or Newcastle. The form of initiation ceremony practised by these people is known as the *Bunan*, a full account of which is given by me in a paper contributed to the Anthropological Society at Washington, U.S.A., and published in the "American Anthropologist."[2] Among a

[1] These neophytes must attend at least two more Bŭrbŭngs before they will be entitled to claim the full status of tribesmen.

[2] "Am. Anthrop., Wash.," ix.

section of these tribes there is also an abbreviated ceremony termed the *kūringal*, used under certain circumstances, which has been described by my friend and fellow worker, Mr. A. W. Howitt,[1] and is further illustrated and explained by me in a subsequent paper.[2]

An ACCOUNT *of* SKULLS *from* MADAGASCAR *in the* ANATOMICAL MUSEUM *of* CAMBRIDGE UNIVERSITY. By W. LAURENCE HENRY DUCKWORTH, B.A., Fellow of Jesus College.

[WITH PLATE XXXI.]

THE University collection contains three skulls from Madagascar of which one was presented by the Rev. C. P. Cory, the other two by the Rev. J. W. Mathews. The donor of the first writes to say that he obtained the specimen himself from the east coast, at some risk, for the natives venerate the dead, and is of opinion that it belonged to an individual of one of the woolly-haired tribes, probably the Betsimisaraka. The other two skulls are labelled "Skull of a Betsileo" and "Skull of a Hova" respectively.[3]

In no case does the mandible accompany the skull; the principal features of the latter are as follows:—

The first, that of a native of the Betsimisaraka or Betsimsarak tribe, has been embedded in vegetable mould, some of which still adheres to its base, and which has stained the bone a brownish red colour. The zygomatic arches, pterygoid plates, and alveolar border have sustained some damage. The absence of strongly marked muscular ridges and other features distinctive of sex causes some hesitation in pronouncing on this point, but the balance of evidence appears to indicate a female; the remaining teeth are of large size and being but little worn indicate that the individual was in the prime of life.

The profile view (norma lateralis) shows slight prognathism; the general outline of the face is somewhat flattened, the naso-frontal depression being quite shallow, and the forehead high; the contour of the cranial vault is uninterrupted by flattening, and forms a continuous curve from nasion to inion. On either side, the frontal and temporal bones are separated at the pterion by a narrow spur-like projection of the parietal bone. The conceptacula cerebelli are large and bulging.

In norma facialis, narrowness is a notable feature, the orbital axes droop slightly externally, the canine fossæ are remarkably

[1] "Journ. Anthrop. Inst.," xiii, 432–439.

[2] *Ibid.*, xxv, 316–317, Plate XXVII, Sec. 2.

[3] The Betsimisaraka tribe occupies the east coast, the Betsileo the central southern districts.—Sibree.

shallow, and the lower margins of the apertura pyriformis of the nose are indistinct.

In norma basilaris, the palate is seen to be wide and deep and its anterior foramen of considerable size. The occipital condyles are small, rounded, and everted, and are situated towards the anterior part of the lip of a large foramen magnum.

The specimen labelled "Skull of a Betsileo" is that of an adult male. Like the preceding it has been stained by the action of vegetable juices, and is in a fairly good state of preservation, though the zygomatic arches and the internal skeleton of the nose have been somewhat damaged. The sex is unmistakably indicated by the prominences of the glabella and inion, as well as by the prognathous upper jaw and the large size of the remaining teeth. The cubical capacity is also considerable.

In norma lateralis, the prognathism appears to be mainly sub-nasal, the profile of the face is somewhat flattened and the fronto-nasal depression shallow. The curve of the cranial vault as in the preceding specimen is uninterrupted by flattening from ophryon to inion. The sutures, as a whole, are remarkably free from synostosis, and there is a wormian (epipteric) ossicle at each pterion.

In norma facialis a slight degree of scaphocephaly is noticeable, and the face is long and narrow with sharp-bordered orbits whose axes are nearly horizontal. The nasal bones are short and flat, the nasal processes of the maxillæ massive, the canine fossæ remarkably shallow, and the inferior margins of the apertura pyriformis of the nose are replaced by gutters (*gouttières simiennes*).

In norma basilaris, the width and shallowness of the palate with moderate tubera maxillaria are to be noted. On the right side the foramina spinosum and ovale are confluent.

The third specimen is labelled "Skull of a Hova," and is in good preservation, though it has been perforated in the region of the obelion. The full dentition and the closure of the

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Description of Plate XXXI.

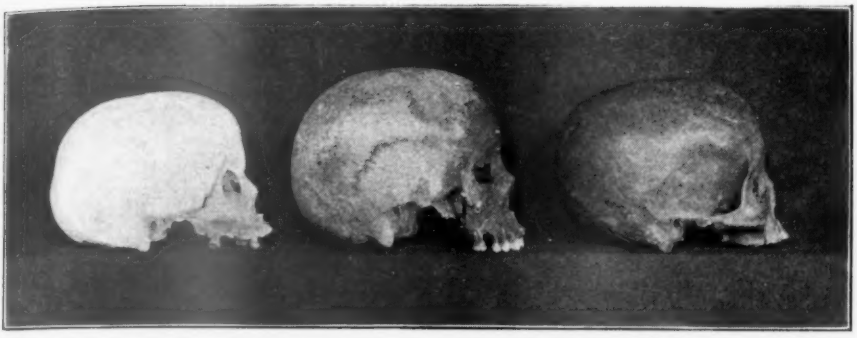
Fig. 1.—Profile views (norma lateralis) of { skull of Makua (to the left). skull of Betsimisaraka. skull of native of Mobangi (to the right).

Fig. 2.—Norma facialis of the same.

Fig. 3.—Skulls of Dyak from Borneo (to left), and Hova from Madagascar in norma lateralis.

Fig. 4.—Norma facialis of the same.

The writer is indebted to Mr. F. W. Green, of Jesus College, Cambridge, for the above photographs.



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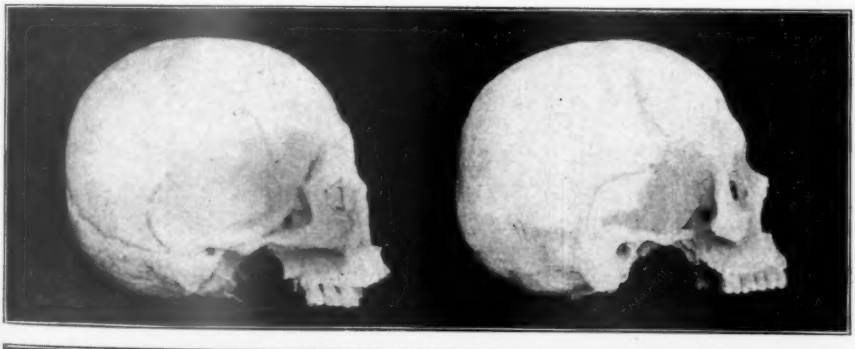

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basilar suture indicate maturity, and the stout zygomatic arches, pronounced glabella, and large teeth indicate the male sex of this specimen. It is bleached as though it had lain in dry dusty soil, and thus presents the first of a number of points of difference from the two preceding skulls. For this is a short, round skull, prognathic to a slight degree only when viewed in norma lateralis. In norma facialis, the width of the face appears greater than in the two preceding cases; the orbits are large and their axes droop slightly externally, the canine fossæ are deep, the nasal bones prominent, the apertura pyriformis wide and with sharp inferior margins.

In norma basilaris, the shortness of this skull is evidenced in the arrangement of the structures at its base. The palate is wide and deep, the remaining teeth but little worn. Some destruction, due to weathering, has occurred near the foramen magnum, which is of moderate (relative) size and roughly diamond-shaped.

The above notes on the craniological features of the specimens may now be supplemented by a few words on the table of measurements.

With regard to the first specimen, the Betsimisaraka, the cubic capacity is 1450 c.c.; the maximum length is considerable, viz., 186 mm.; the dolichocephalic character is clearly shown by the breadth index which nearly approaches the vertical index. (71 = breadth index, 70 = vertical index.)

In the case of the Betsileo skull, the cubic capacity is somewhat greater than in the preceding example, being 1480 c.c., the lengths almost identical; the cephalic index again denotes marked dolichocephaly and equals the vertical index (72·4).

In the third case, the cubic capacity falls short of that of either the preceding specimens, being only 1315 c.c. The breadth index denotes the marked brachycephalic character and somewhat exceeds the vertical index. A dental index could be calculated and the figure (43·15) places this skull in the mesodont group.

It is now possible to institute comparisons between these skulls and to attempt to trace resemblances between each in turn and specimens from other parts of the world. First, it is evident from a brief survey, that Madagascar can furnish at least two types of crania; for the two specimens first described correspond nearly in general features, and both differ from the third. Thus appearances indicate that the Betsimisaraka and Betsileo skulls are long and narrow, with narrow and flattened faces; to such general features may be added similarity in the shape and disposition of the tympanic ring at the external auditory meatus (viz., downward prolongation); the compara-

tively deep glenoid fossa ; the relatively large foramen magnum. Whereas the Hova skull is broad, the face wide, the nose prominent, there is but slight downward prolongation of the tympanic ring, and the glenoid fossa is shallow. Some of which is reiterated by the table of measurements, which leads to the recognition of similarity between the first two, particularly in the following points :—

Character.	Betsimisaraka.	Betsileo.	Hova.
Cubic capacity	1450	1480	1315
Horizontal circumference	511	515	483
Maximum length	186	185	168
Maximum breadth	132	134	138
Nasomalar index	108·5	109·7	113·5

while both contrast with the Hova in all respects save the breadth. Such facts point to what has already been expressed in this Journal and elsewhere, viz.: that among the various races now inhabiting Madagascar some are distinctly dolichocephalic, others decidedly brachycephalic. And, moreover, that the former type is that of the wilder tribes whose affinities seem to rank them with the negro races, while the latter class is represented by the more civilised Hovas, who are regarded as of Malayan origin.

The evidence for such statements comes from several sources, for instance the physical appearance, the language, history, legends, customs, and arts, of the respective tribes, and this paper will be concluded by a brief review of the results of the study of the first of these more particularly in respect of craniology.

The accounts already published of the Betsimisaraka and Betsileo tribes are not very numerous. A good bibliography up to the year 1885 is given by Professor Max Leclerc in a most interesting paper published in that year in the "Revue d'Ethnographie." It is therein recognised that a great diversity of races is met with in Madagascar. There seems to be no certain evidence of the characters of the aboriginal inhabitants.

The earliest race of which any record is left (the Va-Zimba) has been thought to be allied to the Bantu family. It was succeeded by various tribes which agree in certain negroid characteristics and among which are the Betsimisaraka and Betsileo. But here the difficulty arises of ascertaining whether the features referred to as negroid approximate these tribes to the African or to the Oceanic negro.

MM. de Quatrefages and Hamy report ("Crania Ethnica")

that of the various tribes some (viz., the Sakalaves and Antchianakas) are nearly allied to the Bantu family, whereas others (such as the Antankares and Betsimisarakas) are more decidedly negro than the former. Leclerc (*loc. cit.*) suggests a common origin for these and the Betsileo tribes, and regards this original race as African. Herein he is opposed to such writers as Grandidier, Oliver, Sibree, Ellis, who regard such an origin as "Oceanic"; while de Quatrefages in a later work[1] (1889) than the "Crania Ethnica" considers the races of Madagascar as allied to the Papuans rather than to the negroes of Africa. Writing in this Journal in 1892, Professor Sibree described the Betsileo as a race darker in colour than the Hova, probably descended from Melanesian ancestors or from a mixture of dark and light Pacific islanders, and supports the statement by evidence from the character of certain ornamental carvings.[2] Another view is that of Macé-Descartes (quoted by Leclerc, *loc. cit.*), who regards the Betsileo as allied to the Hova race.

MM. de Quatrefages and Hamy besides basing their opinion as to the Papuan affinity of these tribes on considerations of language, remark on certain of their cranial characteristics, notably hypsistenocephaly and frontal compression, which are known to distinguish Papuan skulls. But of the series of figures they publish, it appears that in the case of three male Betsimisaraka skulls only, do the proportions approach those of Melanesian skulls, for in these three the dimensions give to the average a marked degree of hypsistenocephaly and a moderately low nasal index. In contradiction to such an indication must be mentioned the high figure representing the orbital index. In the same table, measurements relating to two female Betsimisaraka skulls show that in these the vertical index is as much below the breadth index as it was above it in the case of the male skulls.[3]

Finally, a skull from Madagascar in the Museum of the Royal College of Surgeons is distinctly platycephalic. So that from measurements on actual specimens, but little evidence can be brought forward with regard to the Betsimisaraka, and even less with regard to the Betsileo skull.

This being so, the Betsimisaraka and Betsileo skulls in the Cambridge Museum were compared with other specimens in that collection with the following results. That from appearances no distinct resemblance to the Melanesian skulls can be discovered, the chief differences being in respect of size of facial

[1] "Histoire générale des Races Humaines."

[2] Certain Betsileo designs of carving almost exactly reproduced in the Hervey islands.

[3] A condition characteristic of female skulls of various races.

skeleton, prognathism, depth of canine fossæ. Neither can resemblances be traced to the Kaffir skulls, or to some negro skulls from the west coast of Africa. There are, however, two African skulls which bear a general resemblance in shape to the Betsimisaraka skull. One of these is that of a Mobangi native from Central Africa about a thousand miles from the mouth of the Congo, the other that of a Makua native from near Zanzibar. Besides the general aspect and contour, the Mobangi skull is not far removed in proportions from the Betsimisaraka. The Makua skull is much smaller than either and agrees only in minor details of measurement. Figures representing some of the chief dimensions of these skulls have been arranged in a comparative table, together with figures relating to the specimen from Madagascar, in the museum of the Royal College of Surgeons. (Flower's "Catalogue," No. 1306.)

So that if one might argue from so few examples, the indications are to regard the affinities of these tribes (despite their language) as approximating them to certain African negro races, though it is possible that the latter themselves may have some connection, as yet unrevealed, with the Oceanic negroes (*v.* Max Leclerc, *loc. cit.*).

There remains to consider the Hova skull. Though the date of the arrival of the Hovas in Madagascar is uncertain, yet there seems to be some evidence for placing it in the 7th century A.D. Physical conformation, tradition, and language point to an origin which may be referred to as Indonesian.

MM. de Quatrefages and Hamy ("Crania Ethnica") record the occurrence in a Hova skull of a cranial deformity previously met with in the Malay peninsula. These authors also state that the Hova skulls resemble certain skulls of the Antankares (one of the wild tribes of Madagascar who have mingled with the Hovas), and describe an Antankare coffin as very similar to those in use in the Philippine Islands, while the skull of the contained corpse was brachycephalic, and of an Indonesian type. The measurements recorded by these authors as the mean of two male specimens, are not closely approached by those of the Hova in the Cambridge collection, for the latter is of smaller capacity and more distinctly brachycephalic than the former. No strong resemblance can be traced to either the Polynesian specimens or to a skull from Manilla in the Cambridge museum. However a most striking similarity is found between the Hova skull and that of a Dyak from North Borneo in the same collection, and this similarity in form and proportion is confirmed by the principal measurements and indices which have been tabulated side by side, and in almost every instance correspond closely, the only notable exception being the nasal index. On

searching for measurements of other Indo-Malayan skulls, two specimens in the museum of the Royal College of Surgeons seem to approach in proportions those just mentioned, and the figures relating to these have been added to the comparative table. Finally the measurements of a skull from the Philippine Islands (recorded in the same volume of Flower's "Catalogue") present a number of features similar to both the Hova and Dyak skulls, and are of increased interest in consideration of the statements of MM. de Quatrefages and Hamy in regard to the Antankare and Hova tribes of Madagascar (*v. supra*).

In conclusion, a study of the specimens at Cambridge shows that the Hova skull finds its counterpart in one from Borneo, and differs widely from the Betsileo and Betsimisaraka skulls; that the two latter agree in such features as distinguish them from the Hova, and resemble certain skulls from the African continent rather than any Oceanic specimens.[1]

TABLE I.

DIMENSIONS OF SKULLS FROM MADAGASCAR IN THE ANATOMICAL MUSEUM, CAMBRIDGE UNIVERSITY.

Catalogue No. of Skull ..	1783	1784	1785
Sex	—	Male.	Male.
Approximate Age	Adult.	Aged.	Adult.
Cubic capacity	1450	1480	1315
Maximum length	186	185	168
Ophryo-iniac length	179	178	162
Ophryo-occipital length	183	183	165
Occipito-spinal length	179	192 (?)	170
Occipito-alveolar length	187	200 (?)	178
Maximum breadth	132	134	138
Bi-asterial breadth	106	110	109
Bi-stephanic breadth	109	109	120
Bi-auricular breadth	111	115	117
Minimum frontal breadth	94	98	92
External bi-orbital breadth .. .	98	108	105
Minimum inter-orbital breadth ..	27	27	29
Bi-zygomatic breadth	115 (?)	130 (?)	130
Bi-malar breadth	108 (?)	115	113
Bi-maxillary breadth	90 (?)	100	92

[1] Since the foregoing account was written, I have read the important paper on Skulls from Madagascar by Prof. Virchow ("Verhandlungen der Berliner Gesellschaft fur Anthropologie": Siby ung vom 18 Juli, 1896). Without attempting to discuss this paper, I will mention that the measurements there given of two Hova skulls approach most nearly those of the Betsileo skull described in the present paper.

TABLE I—*continued.*

Catalogue No. of Skull ..	1783	1784	1785
Sex	—	Male.	Male.
Approximate Age	Adult.	Aged.	Adult.
Jugo-nasal breadth	94	103	96
Ophryo-alveolar length	92	92	87
Nasi-alveolar length	70	68	65
Basi-alveolar length	95	101 (?)	92
Basi-nasal length	95	101	95
Basi-glabellar length	105 (?)	109	102
Basi-bregmatic length	130	134	132
Basion to obelion : length	128	132	122
Basion to lambda : length	115	119	110
Basi-iniac length	80	85	75
Basion to opisthion length	39	38	34
Breadth of foramen magnum ..	32	31	31
Orbital height	30	33	33
Orbital breadth	35	40	37
Nasal height	49	50	45
Nasal breadth	28	31	28
Palato-maxillary length	49 (?)	53	52
Palato-maxillary breadth	58 (?)	65	65
Anterior palatine breadth	28	28	27
Posterior palatine breadth	37 (?)	42	41
Arcs : Frontal	131	133	129
Parietal	128	1?8	114
Occipital *to Inion*	69	66	60
Occipital, *Inion to Opisthion*	50	50	46
Supra-auricular	303	310	309
Oblique parietal	351	363	359
Jugo-nasal arc	102	113	109
Horizontal circumference	511	515	483
Height of choanæ	35 (?)	?	30
Breadth of choanæ	32 (?)	33	30 (?)
Length of floor of nasal cavity ..	38 (?)	?	36
Least distance between temporal crests.	94 (?)	104 (?)	124 (?)
Weight of skull (without jaw) ..	445	533	418
Combined length of three molar teeth.	—	—	28 L.
Combined length, molars and premolars.	—	—	41 L.
Indices : Cephalic	71	72·4	82·1
Vertical	70	72·4	78·6
Alveolar	100	100 (?)	97
Orbital	85·7	80·25	89·2
Nasal	57·14	62	60
Palato-maxillary	?	122·6	125
Facial superior (Broca)	80 (?)	70·8 (?)	66·9
Facial superior (Köllmann) ..	60·9 (?)	52·3 (?)	50
Stephano-zygomatic	94·8 (?)	83·1 (?)	92·3
Naso-malar	108·5	109·7	113·5
Dental (Flower)	—	—	43·15

TABLE II.

COMPARISON OF SKULLS FROM MADAGASCAR WITH OTHER SPECIMENS.

Skull	1784	1783	1749	1306	1727	1785	1787	732A.	744	747
Measurement or Character ..	*Betsileo.*	*Betsimsarak.*	*Mobangi.*	*Majambo*	*Makua.*	*Hova.*	*Dyak.*	*Java.*	*Borneo.*	*Philippine.*
Age and Sex	Adult ♂	Adult ♀	Adult?		Adult.	Adult ♂	Adult ♂	Adult ♂	Adult ♂	Adult ♂
Cubic capacity	1480	1450	1360	1460	—	1315	1378	1370	1410	1240
Maximum length	185	186	177	186	169	168	165	172	173	165
Maximum breadth	134	132	133	141	126	138	138	139	142	140
Vertical (B.-Br) Height ..	134	130	133	127	114	132	133	135	?	127
Basi-alveolar length	101	95	99	102	91	92	90	102	97	92
Basi-nasal length	101	95	98	95	86	95	97	100	98	99
Horizontal circumference ..	515	511	504	524	480	483	485	498	498	483
Cephalic index	72·4	71	75·1	75·8	74·6	82·1	83·6	80·8	82·1	84·8
Vertical index	72·4	70	75·1	68·3	—	78·6	80·6	78·5	—	77
Alveolar index	100(?)	100	101	107·4	105·8	97	92·8	102	99	92·9
Orbital index	80·25	85·7	100	82·5	89·2	89·2	89·2	90	87·2	88·9
Nasal index	62	57	58	55·1	66·6	60	49	54	47	48·9
Naso-malar index	109·7	108·5	111·4	—	109·7	113·5	108·6	—	—	—
Facial index, Köllmann ..	52·3(?)	60·9 (?)	57·25	—	49·5	50	50·4	—	—	—

The dimensions of the Hova skull nearly approach those of a female Hova skull measured by MM. Quatrefages and Hamy, and its appearance in general resembles that of a Hova skull (Collection Daullé) figured in their work ("Crania Ethnica").

Reference to specimens in the Museum of the Royal College of Surgeons:—

No. 1306. A skull from the N.W. coast of Madagascar.
No. 732A. A skull from Java.
No. 744. A skull from Borneo.
No. 747. A skull from the Philippine Islands.

ANTHROPOLOGICAL MISCELLANEA AND NEW BOOKS.

Readers of the Journal are invited to communicate any new facts of especial interest which come under their notice. Short abstracts of, or extracts from letters will be published at the discretion of the Editor. Letters should be marked "Miscellanea" and addressed to The Secretary, 3, Hanover Square, W.

Aboriginal Goldsmiths' Work in Colombia.

The methods in use by primitive peoples in working metals are always of interest, and I venture on that ground to call attention to an illustration of the way in which the *repoussé* gold figures are made, so commonly found in the Republic of Colombia (New Granada). The figure will explain the character design of the small stone model in question; the designs represent busts with the radiating feather head-dress that may be called characteristic of the ancient Mexican and more southern races; and upon three of the edges of the stone are figures somewhat like the well-known "Nilometer." A model similar to this is figured by Vicente Restrepo in "Los Chibchas antes de la Conquista Española"—Bogotà, 1895. Atlas, Plate XLI, Fig. 129. In the description of the plates it is called "Piedra con figuras realzadas," and there appears to be nothing in the text to explain its use. This I take to be undoubtedly for the making of the *repoussé* figures which are found in rows upon the larger gold ornaments of Colombia, as well as in single figures as pendants for necklaces, etc. The small Nilometer-like columns are also for necklaces, and the Christy Collection (British Museum) possesses several that might almost have been made from this very model. Señor Restrepo's Atlas above referred to contains many illustrations of the gold ornaments of these types. The length of the model is 3¼ inches.

C. H. READ.

Note on a Moriori Skull, from Waitangi West, Chatham Islands. Collected by Mr. J. W. Williams, presented to the British Museum by Sir A. Wollaston Franks, K.C.B., F.R.S.

The cranium has no lower jaw belonging to it. It is that of a powerful male, with well developed mastoid processes and occipital ridges, and of a person probably beyond middle age. Most of the sutures, especially the coronal and sagittal, are almost obliterated, but the lambdoidal is open, with very complex denticulations. It is very heavy and thick. Most of the teeth have been lost during life, and those that remain, viz., three incisors, the canines, the first premolars and the last molars, are worn down almost to the level of the alveolar margin. There is a large cavity, as of an abscess, opening on the surface, over the root of the left canine. The forehead is narrow and low, the parietal eminences very prominent. The jugulars strongly phanogygous. The orbits nearly square. The nasal bones narrow and prominent at their lower ends, indicating a fairly high bridge to the nose. The nasal spine well developed, but the margin of the aperture on each side of the spine indistinct, the floor of the nasal chamber passing insensibly on to the alveolar surface.

Taken altogether it is an extremely characteristic Moriori cranium, as the principal indices show when compared with those of seven specimens contained in the museum of the Royal College of Surgeons.[1]

	Millimetres.		Average indices of seven Moriori, skulls in Museum Royal College of Surgeons.
Length	193		
Breadth	152		
Height	140		
Length index	—	78·8	77·9
Height index	—	72·5	75·0
Basi-nasal length	106		
Basi-alveolar length	106		
Gnathic index	—	100	99·1
Nasal height	54		
Nasal width	25		
Nasal index	—	46·3	45·1
Orbital width	40		
Orbital height	36		
Orbital index	—	90·0	93·1

With the cranium were two lower jaws, neither of which belongs to the same individual. One is that of a person equally or still more aged, the stumps of only three teeth remaining in place, the

[1] See "Catalogue" (1879) by W. H. Flower.

two incisors and the middle molar of the left side, and all worn down to the level of the alveolar margin.

In the other, that of a much younger person, the whole of the teeth were in place at the time of death, although more than half of them have now fallen out of their sockets. Those that remain already show considerable abrasion of the grinding surface, so that it is clear that the food of these people must have contained a large proportion of sand or gritty material, which alone can cause such extensive wear. A similar condition of teeth is generally seen in the Indians of British Columbia, who subsist very largely upon salmon dried in the air, and often exposed to sandstorms in the process. It was also common among the ancient Egyptians.

W. H. Flower.

"Signaletic Instructions, including the theory and practice of Anthropometrical Identification." By Alphonse Bertillon. Translated from the latest French edition under the supervision of Major R. W. McClaughry, late General Superintendent of Police of Chicago. The Werner Company, Chicago, New York and London. 1896.

The recent adoption of the Bertillon system of identification by the Scotland Yard authorities has been the means of arousing a certain amount of public interest. Those who are not familiar with the work of the French anthropometrist, have now an opportunity of acquainting themselves with all the details of the system, by consulting the translation issued by the Werner Company of Chicago and New York.

The work is conveniently divided into three parts:—An Introduction, Instructions for Signalments, and an Appendix.

The general reader will find most that will interest him in the somewhat lengthy Introduction. It practically amounts to a dissertation on the whole subject, the remaining portions of the book being devoted to purely technical details.

An individual may be recognised by a variety of means. The measurements of certain definite parts of his body may be taken and recorded. A description of his personal appearance, including details regarding the colour of his eyes, skin, and hair, together with an account of the form of such features as the nose, mouth, and ear, &c., may be carefully prepared, and finally a statement including a description of all peculiar marks may be drawn up. These three kinds of signalment are carefully considered in the present work, and their respective merits discussed. It is with the first of the group that Bertillon's name is more immediately associated, though one cannot read the book through without realizing the great amount of time and labour the author has expended on the descriptive signalment, and the signalment by peculiar marks.

Of the three methods, the most satisfactory, from a scientific point of view, is that which is based on accurate measurements. Not only is there more certainty in the results obtained, but the

system lends itself to a comparatively simple method of classification, so convenient to work, that there is no difficulty in finding, in a few minutes, the duplicate of a card in a cabinet containing say 40,000 anthropometrical signalments. This system entails the employment of skilled assistants throughout the country, and it is in the instruction of these that the voluminous details given by M. Bertillon will be of immense service.

The measurements adopted by M. Bertillon are those of height, reach, trunk, head length, head width, bizygomatic width, length of left foot, left medius, left forearm, diameter of right ear, and length of left ear. The Scotland Yard authorities, acting on the advice of Dr. Garson, have discarded some of these as of comparatively little importance, and have thus reduced both the number of measurements necessary, and the time taken up in recording them. The exceptions are the measurements of the reach, the trunk, and the diameters of the ears. It is noteworthy, too, that we have adopted the measurement of the face width (bizygomatic width) which M. Bertillon at first omitted, but which he now includes in the later instructions.

So far the system adopted has proved of the greatest value, not only in detecting the old offender, but in protecting the innocent, and if at first the margin of error appears somewhat small, experience in working has proved that remarkable accuracy of results is attained. M. Bertillon is careful to point out almost all possible sources of error, though it is curious that whilst he lays stress on the fact that the subject should be prevented from contracting his eyebrows when the measurement of the head length is taken, yet he fails to note that when the head width is being measured the subject should be asked to open his mouth, so as to ensure that the measurement may not be increased by a greater thickness of the temporal muscles, due to their contraction during firm closure of the jaws.

But whilst the anthropometric signalment fulfils nearly all the conditions necessary for its applications to the adult, it is open to this serious objection, that it is practically useless before the age of 20. This is extremely unfortunate, as it is precisely at this period of life that we can hope to reclaim the juvenile offender, and do our best to prevent him becoming an habitual criminal.

In such cases the police must have recourse to the descriptive signalment, and this brings us to the second means of identification as classified by Bertillon. On this subject the author has brought to bear his vast practical experience, as well as his knowledge of scientific methods, with the result that the section on this subject is most exact and elaborate. Such a signalment may be either a written statement, or its place, where possible, may be taken by a photograph. The latter is certainly more convenient and valuable. It is in the preparation of this written descriptive signalment that we feel most inclined to differ from the author. It seems to us that in his attempts to be accurate, and in his endeavours to reduce all descriptions to a common system, he has

erred on the side of undue elaboration. In order to render the system workable, it has been necessary to have recourse to abbreviations, and these unhappily for us are based on the French words, of which they are the contracted forms, as, for instance rel. for elevated (Fr. relevé), and ab. for depressed (Fr. abaissé), Before such a system can ever come into operation it would be necessary to have some sort of international agreement as to the terms employed, and even then it would be cumbrous, besides involving the expenditure of much time and labour in acquiring a knowledge of it. One cannot help thinking that there is a great difference between its existence on paper as an ideal scheme, and its practice by officers, of whose duty it only forms a part. None the less M. Bertillon has done good service in emphasizing the importance of certain physical characters in this connexion. Thus he lays great stress on the value of the ear as a means of identification, a fact which he further confirms at p. 176, by a table wherein is given a list of abbreviations (to the number of 63), of the "morphological qualifications of each part of the ear."

Most, if not all the difficulties of a descriptive signalment are overcome by the use of photography. As these photographs are pasted on the cards of the anthropometrical signalments they are necessarily classified along with them. In this way the photograph of a suspect can easily be compared with that taken previously if he has been already measured. Accordingly the photographs are much more valuable now than in the days when a detective had to spend much of his time turning over the pages of the official albums on the off chance of recognising the portrait as that of a convicted criminal. In order that the photographs may be readily compared, it is necessary that they should be taken under the same conditions of light, and in similar poses. Adequate instruction is given in regard to these matters in an appendix dealing with Judicial Photography, but unfortunately the nature of the lens employed is not mentioned. This is a matter of some practical importance. The longer the focus of the lens the less the perspective of the object is forced when the reduction is to the same scale, and hence there is less distortion than when a lens of shorter focus and wider angle is used. This has always been urged as a reason why photography should not be employed in delineating skulls. But provided a satisfactory lens is made use of, these objections are reduced to a minimum. In the present instance the reasons are perhaps not so obvious, but it would have been well to have drawn attention to the fact, the more so as it would have lead to more uniformity in the results.

The third form of signalment is that relating to peculiar marks. The author insists on accuracy of description, pointing out that "the signaletic power of a peculiar mark increases in geometrical progression, according to the precision with which it has been described." Here again contractions are largely made use of, as the space on the signaletic card is but small, thus:—

Cic. r. of Ib. e. ml. 2^{d} f. M. g: p.

means—cicatrix rectilinear, of a dimension of one centimetre, oblique external, on middle of second phalanx of middle finger, left side, posterior face.

We have the author's authority for stating that "an apprenticeship of some days is sufficient for the attainment of a maximum of speed" in writing and reading the contracted forms. We hesitate to say it, but it must be that French prison officials are much quicker in the "uptake," as the Scotch say, than our own police.

It is satisfactory to know that M. Bertillon has recognized the value of finger prints as a means of identification; in this respect therefore the systems of the French and English police are in agreement.

The book is indispensable to every one interested in the question of personal identity. The author's knowledge is such that his methods are based on practice, and his warnings are the outcome of experience. We like the first part of the book best, viz., the Introduction and that part which refers to the anthropometrical signalment. As we have said, we regard that part which deals with the descriptive signalment as less successful, not that the author has taken less pains with it; in fact, it seems to us that, in his anxiety to provide a scientific method of description, he has so overburdened his subject with details as to render it unworkable, except under very extraordinary conditions.

A passing word of praise in regard to the illustrations, and the album. The latter will well repay inspection, and will give rise to doubts in the minds of many whether craniometry has much advanced our knowledge of the appearance of the head and face in the living.

A. T.

The Natives of Sarawak and British North Borneo. By H. Ling Roth. With a preface by Andrew Lang. 2 vols. 8vo. Over 550 illustrations. London: Truslove and Hanson. 1896.

Mr. Ling Roth has done a great service to Anthropology in compiling this very valuable compendium of the ethnography of the Northern tribes of Borneo. As in his well-known little book on "The Aborigines of Tasmania," he has brought together the results of wide reading, and both works are indispensable as books of reference for those who desire to make themselves acquainted with the islands in question; but the next publication has the advantage of dealing with peoples yet alive, and about whom we may yet hope to learn a good deal more. Such books as this save the student an immense deal of weary labour in hunting up authorities. Their advantage to anthropological science is also very great, for not only do they diffuse information, and may even awaken a permanent interest in anthropology; but by bringing together scattered facts, the latter tend to mutually elucidate one another, and conversely there is a demonstration of the gaps in the information, and of imperfections in the interpretations which haply may be supplemented before it is too late. How many

examples there are where this is now impossible—of Tasmania, for example, one may almost describe our information as being composed of gaps.

This work is based on the notes of the late Hugh Brooke Low, but free use has been made of the descriptions of a large number of travellers, and in all cases precise references are given, which enable the reader to verify the transcriptions. The book deals with the physical and mental characters and distribution of the various tribes of Sarawak and North British Borneo, their birth, marriage, and funeral customs, their religion, legends, and festivals, the medicine men and women, and the native diseases. The daily life is fully considered including its duties, such as agriculture, hunting and fishing, and its pleasures, such as the employment of narcotics. The houses are described, and the implements and weapons, as well as the domestic arts of weaving, dyeing, painting and tattooing. Government and trade, slavery and other aspects of social life, are detailed, and also the anti-social habits of head-hunting and poisoning. The vocabularies fill 160 pages of the Appendix, but the more important structure of the languages is practically totally ignored; and there is also added a translation of the very excellent observations made by Dr. Schwaner.

Most of the aspects of native life are dealt with as fully as the existing materials permit, and so we can gain a very complete idea of the appearance, life, arts, and crafts, actions and beliefs of these interesting people. It is certainly a matter of regret that the account of the craniology of the natives is so extremely meagre. The index is full, and the items are arranged alphabetically within a comparatively small number of groups, such as agriculture, character, music, war, etc. The book is profusely illustrated mainly with clever sketches of objects in various museums, but suitable illustrations have been freely borrowed from other sources. In looking through the illustrations of decorated objects, one is impressed with the idea that a careful study of the decorative art on the spot would well repay any traveller; investigations carried on in museums are at best very unsatisfactory.

Altogether both the author and the publishers are to be congratulated on the "get-up" of the book.

A. C. H.

The Whence and the Whither of Man: a brief History of his Origin and Development through conformity to Environment. By J. M. Tyler, Professor of Biology, Amherst College. W. Blackwood and Sons. 1896. 8vo. 312 pp.

This is not an anthropological book in the limited sense of the term, but one which is calculated to awaken an interest in many of the broader problems of anthropology in religiously minded people. The book is the embodiment of a course of "Morse

Lectures" delivered in the Union Theological Seminary; this trust was founded for lectures which have to do with "The relations of the Bible to any of the sciences." So far as we have noticed, Professor Tyler's science is sound, and he deals with the physical structure of man, his evolution, and the development of individual and social morality in a broad-minded manner. The tone of the book is deeply religious in the best sense of the term.

Recent Books on Oceanic Philology.

1. **"A Dictionary of the Language of Mota, Sugar Loaf Island, Banks' Islands."** By Rev. R. H. Codrington, D.D., late of the Melanesian Mission, and Ven. J. Palmer, B.D., Archdeacon of Southern Melanesia. With a short Grammar and Index. Society for Promoting Christian Knowledge, London, 1896. 8vo. pp. xxiii and 312.

This work is an important addition to the literature of the Melanesian Islands, and will be found of interest to the anthropologist as well as to the philologist. Though the language is only that of a small population of less than one thousand, it has been used for the past thirty years in oral teaching and as the medium of intercommunication between natives of widely distant islands, and has thus obtained, as the *lingua franca* of the Melanesian Mission, an importance which makes it, as a representative Melanesian language, second only to that of Fiji. The dictionary is prefaced by a succinct grammar of the language, and by some remarks on the general relationship of the Mota to other Oceanic languages. These point to the fact of very many agreements in the vocabularies from widely separated islands, and are justified by placing in the vocabulary after the Mota words, the cognates in the principal Indonesian, Micronesian and Polynesian tongues, which serve as illustrations of the general connection of the Mota language with the others. These illustrations are found among all classes of words, and in words of common and rare use. The statement sometimes made that correspondences between the Malayan languages and those of the Eastern Islands are limited to a few modern words could easily be refuted by this dictionary alone. Take, for example, the following Mota words:

> *Wirita*, octopus; *ura*, crayfish; *ulo*, maggot; *tano*, ground; *sala*, path; *tun*, roast; *tani* (tangi), weep; *mate*, die; which are found throughout the Malayan Archipelago, and even appear in Malagasy as *horita*, *orana*, *olitra*, *tany*, *lalana*, *tono*, *tany* and *maty*.[1]

Compare also the same words in the following notices of New Guinea, and in Samoan. These cannot be regarded as modern words, and yet the list might be considerably extended so as to form a large vocabulary.

[1] In these Malagasy words *o* is pronounced as *u*, and *na*, *tra*, in *orana*, *olitra*, *lalana* are separable suffixes.

In some cases the Mota dictionary gives information of ethnographical interest, by describing a native operation in detail. As an illustration I take the entry under the word *aka*, which appears thus:—

Aka, canoe; *aka paspasau*, with plank sides. Fiji, *waqa;* Mao. *waka;* Sam. *va'a;* Bouru, *waga*, *waa;* Amboyna, *haka;* Ponape, *wa*. A canoe is hewn out, *we tara o aka;* in shaping the hull, *turiai*, the tree trunk is cut with sideway strokes, *ari*, on the outside, and hollowed inside with straight strokes, *pari*. The two ends are shaped alike, the hollow part under the bows or stern being the *qanqanai;* the upper part of each end being decked with a *taqava*. Upon the hull is built, *pasau*, the bulwarks of plank; *irav*, *me tara mun o lakae*, *we waswas lue mun o nurnuriaka*, shaped (in old times) with the shell adze and bored at the edge with a shell; these holes in the planks and trunk are *matewas*, and *we vil o irav ape turiai mun o gaun ape matewas*, a lashing of sinnet passes through them. A staging of rods of hibiscus covers the two ends upon the bulwarks, *we las o qeaqea varu*. At the two extremities of the hull double horns, *tikataso*, of *gasur*, are made fast, to work the steering paddle, *turwose*, in, which is tied in place with the *ga-ta-wose*. The outrigger, *sama*, is connected with the canoe by three yokes, *iwatia*, the ends of which are made fast, *vil*, to pegs, of *nira* wood, the *pisvatoto*, driven into the outrigger. The free ends of the two outer yokes, *iwatia mot*, pass under the stages, *qeaqea*, and are made fast to the bulwarks, *we vil ape irav;* the free end of the middle yoke is not tied fast, *we risa gap*. The outrigger is thought always to be on the left of the canoe, the open side of which is the *gatae;* the outrigger has its corresponding *gatae*.

The sail, *epa*, is carried by two spars; the longer the mast, *turgae*, the shorter the boom, *pane;* these altogether make the *gapan*. The forked butt, *kere turgae*, of the mast rests on the middle yoke, *iwatia*, is not made fast, *we pute gap gate rot;* the forked butt of the boom, *kere pane*, lies in the same way on the *kere turgae*. The mast is supported by shrouds, *tal*, made fast to the middle of the mast; three brought down to the end of the middle *iwatia*, carried under and wound to the *pisvatoto*, and three to the base of each outer *iwatia mot;* these are the *tan-gae*. The boom is set to the open side of the canoe, *o pane te risa ape gatae*, leaning over; it is supported by two *tal-pane*, each fastened to the *iwatia mot* where it projects from the *irav*.

The sail, *epa*, is made of mats woven by women, *me vau mun gavine gae*, and sewn together by men with a needle of tree fern wood, or a ray's sting, and hibiscus fibre, *o*

mercata we susur mun o gavaru, mun o qatia, o qasai apena, si o togo var. It is laced, *ritata*, to the *turgae* and *pane* with a small line; all is hoisted together, *we tape o epa*, and when not in use is folded with the lines attached. The leech of the sail above is the *qat-mata-lava*, the belly the *toqai*, the part in the angle below the *keretovoi*.

Similar descriptions are given of house building, thatching, etc.

2. **"Grammar and Vocabulary of Language spoken by Motu Tribe (New Guinea)."** By Rev. W. G. Lawes, D.D., F.R.G.S., with introduction by the Rev. George Pratt. Third and enlarged edition. Sydney, 1896. 8vo. pp. xiv and 157.

This very useful book shows a considerable increase in knowledge of the principal language of British New Guinea since the publication of the second edition in 1888. The grammar has been almost entirely rewritten and the vocabulary extended by the addition of more than a thousand words. An introduction by Rev. George Pratt points out many agreements with the Eastern Polynesian languages, but contains no reference whatever to the exceedingly close relationship between Motu and the Melanesian languages, which is strikingly evident in both the grammar and vocabulary. One short example may be given in illustration. The eight words given in the preceding notice as common to Malagasy and the Mota of Banks' Islands appear also in this New Guinea Vocabulary with the same meanings as: *urita*, *ura*, *uloulo*, *tano*, *dura*, *tunu*, *tāi*, and *mate*.

In the Polynesian language of Samoa, the same words are: *fe'e*, *ula*, *ilo*, *'ele'ele*, *ala*, *tunu*, *tagi* (*tangi*), *mate*.

Mr. Lawes gives at the end of his book a comparative vocabulary of seven New Guinea dialects. In these the names Keapara and Galoma are adopted for the dialects formerly called Kerepunu and Aroma.

An Introduction to the History of Religion. By F. B. Jevons, M.A., Litt.D. Methuen and Co., 1896. 443 pages. 8vo. Index.

This is an important contribution to the literature of the subject, approaching it as it does from a new point of view.

Starting from the position that wherever he gets it, the savage has a conception of the supernatural, Dr. Jevons combats the view that magic existed first and that religion was subsequently developed out of it. "Sympathetic Magic" is primitive science, not primitive religion.

The origin of religion is rather to be found in the desire of man to establish friendly relations with some of the supernatural powers which surround him. This desire seemed practicable because he was already in the habit of communicating with the

spirits of the departed, which, whether they possessed supernatural attributes or not, were at any rate spirits. Thus some ghosts at any rate were friendly to the living and loved by them. Religion is not based on dread or fear.

If it is argued that the corpse-taboo implies such universal dread of the ghost, the answer is of another nature altogether. The source of taboo is the conviction that "some things there are which must absolutely—and not on grounds of experience—be avoided. It is the categorical imperative, 'Thou shalt not,' which is the first form assumed by the sense of social and moral obligation." This is one of the points at which many anthropologists will join issue with Dr. Jevons. Mr. Andrew Lang has already done so. (Letter to the "Spectator," Jan. 23rd, 1896.)

The first supernatural alliances were primarily with animals, and secondly with trees and plants, human clans allying themselves publicly with animal and plant clans. This is Totemism. Attempts made by individuals to make private alliances, without the knowledge of the community, with unattached supernatural powers, were regarded as illicit and resented as unfair. Such alliances are the basis of Fetishism, which far from being the origin of religion is a degeneration of it. Dr. Jevons brings out very clearly what may be called the economic aspects of Totemism. It had a wide influence in the domestication of plants and animals. The breeding of cattle and the cultivation of cereals made man more dependent than heretofore on the forces of nature, and led him to worship them with the same ritual as that employed in the worship of his totems. Hence Nature-worship which, like Fetishism, is secondary not primary.

The formation of larger political units rendered possible by agriculture involved a fusion of cults leading either to Syncretism or Polytheism. In either case the resulting modifications in the tribal worship required explanation. The explanation took the form of myth, which is therefore not the invention of the priest.

The book concludes with an account of various doctrines of the future life, and of the origin of Monotheism, which is not developed out of Polytheism as is so often held. Whatever opinion may be formed as to the validity of some of Dr. Jevons' premises, and some at least will be called in question, there can be no two opinions as to the lucidity with which a long and intricate argument is rendered and exposed. Evidence of learning and scholarship is to be found in every chapter, and the author's wide knowledge of classical antiquity has enabled him everywhere to illustrate savage custom by parallels from the Greek and Roman world, thus ever keeping before the mind of the reader that continuity of human thought which has been so unwillingly recognised by classical scholars of a certain school.

Not the least important quality of this valuable book is its suggestiveness: it cannot fail to invite fruitful criticism and to stimulate to further research.

The Myths of the New World: A treatise on the symbolism and mythology of the Red Race of America. By Daniel G. Brinton, LL.D., etc., etc. 3rd edition, revised, 1896. Philadelphia. 345 pp. 8vo.

A new edition of Dr. Brinton's work first published in 1868, containing twelve chapters, with Index of Authorities and Index of Subjects. The chapters are arranged under the following headings:—General Considerations of the Red Race; The Idea of God; The Sacred Number, its origin and applications; The Symbols of the Bird and the Serpent; The Myths of Water, Fire, and the Thunderstorm; The Supreme Gods of the Red Race; The Myths of the Creation, Deluge, the Epochs of Nature, and the Last Day; The Origin of Man; The Soul and its Destiny; The Native Priesthood; The Influence of the Native Religions on the Moral and Social Life of the Race.

The Buddhist Praying-Wheel: A collection of material bearing upon the symbolism of the wheel and circular movements in Custom and Religious ritual. By William Simpson. 8vo. Macmillan. 1896. 303 pp.

This book is what its title implies, a collection of material: its aim is suggestion rather than formulated theory. But the industry and observation of the author have resulted in a highly interesting collection of facts gathered in various countries and dating from various epochs. The reader will gain some idea of the scope of the work from the titles of some of the nineteen chapters of which it is composed:—The Wheel among the Lamas; The Wheel in Indian Buddhism; The Wheel in the Brahmanic System; The Solar Origin; The Swastika; Japan; In Egypt; Among the Semites; The Greek System; In the Christian Churches; Among the Gauls, Teutons and the Celts; The Wheel of Fortune; The Wheel as an Amulet; The Wheel and Thunder. There are numerous illustrations, and the book is provided with a general index, and an index to book references.

British Association, Liverpool, 1896.

The Relation of Palæolithic Man to the Glacial Epoch.

REPORT of the Committee, consisting of Sir John Evans (Chairman), Miss E. Morse, Mr. Clement Reid (Secretary), Mr. E. P. Ridley, and Mr. H. N. Ridley, appointed to ascertain by excavation at Hoxne the relations of the Palæolithic Deposits to the Boulder Clay, and to the deposits with Arctic and Temperate plants. (Drawn up by the Secretary.)

This Committee was appointed "with the object of clearing up certain doubtful points as to the relation of Palæolithic man to the Glacial Epoch," at the Ipswich meeting of the British Association in 1895. Hoxne was selected as the best place for the investiga-

tion because "Palæolithic implements and various fossiliferous strata were there known to occur in close proximity to undisturbed Boulder Clay, and it was probable that a single excavation would be sufficient to decide several of the disputed questions."

Hoxne is on the northern border of Suffolk, in the midst of the great sheet of boulder clay, often styled "The Chalky Boulder Clay," which covers so large a proportion of the surface of Norfolk, Suffolk and Essex. It is now a century since John Frere recorded the occurrence of palæolithic implements there. Among more recent explorers have been Sir John Evans, the late Sir Joseph Prestwich, Thomas Belt, Mr. H. B. Woodward, Mr. Clement Reid and Mr. H. N. Ridley.

The Committee began work at Hoxne on March 23rd, 1896, Mr. Clement Reid remaining in charge throughout the investigation. A pit was sunk in the brickyard north of Fairstead Farm to a depth of 20 feet, and from the bottom of the pit a borehole was made 22 feet lower, when the Glacial Sands, underlying the boulder clay, were reached. It was then thought desirable to make a chain of borings right across the old basin containing the brickearth and other deposits seen in the brickyard, and extending for some distance outside its area. Sufficient evidence was thus obtained to enable the explorers to draw an accurate section across the ancient silted up channel, and to ascertain its relations to the deposits belonging to the Glacial Period.

The trial pit and boring in the Hoxne brickyard was found to be nearly in the centre of the channel, and though the other borings frequently showed boulder clay, in none of them was there any other deposit not seen in Hoxne brickyard, where the explorers found, beginning with the uppermost beds :—

A. Brickearth with freshwater shells, wood and palæolithic implements.
B. Gravel and carbonaceous loam (no implements at this spot).
C. Black loam with leaves of Arctic plants.
D. Lignite with Temperate plants.
E. Lacustrine clay with Temperate plants.
G. Sand full of water.

The sand (G) is that of the Glacial Period which underlies the boulder clay. In other borings nearer the sides of the old channel, boulder clay was found at the bottom, and that deposit forms the surface bed outside the old channel.

Great care was taken to prevent the fossil remains found in beds C and D from being mixed. Samples from them were minutely examined and washed for fossils in London by Mr. Clement Reid and Miss E. Morse.

The Committee point out that the history of these palæolithic deposits seems to have been as follows. Long after the disappearance of the ice which deposited the boulder clay, the land was somewhat higher than at present, so that the old channel in which

these palæolithic deposits are now found could be excavated to a depth slightly greater than that of the Waveney, as it is at present. Then gradual subsidence turned this channel into a shallow freshwater lake. After the lake became silted up its site became overgrown by a Temperate flora. Then lacustrine conditions again prevailed, and a colder climate, resulting in the deposition of Bed C. Then followed the floods during which the palæolithic beds B and A were deposited. "The palæolithic deposits at Hoxne are therefore" (Mr. Reid remarks) "not only later than the latest boulder clay of East Anglia, but are separated from it by two climatic waves, with corresponding changes of the flora. Such sweeping changes cannot have been local; they must have affected wide areas."

The Report is well illustrated by a map and sections. The most important of the sections is along the line of the borings, twenty in number, the position of each being marked, and the old silted-up channel accurately shown in its relations with the boulder clay. There is a full list of the fossil remains found, and details of each of the twenty boreholes are given in an appendix. It is a most fortunate thing that the management of the exploration should have been given to a geologist with the great experience in field geology, especially that of the Eastern Counties, of Mr. Clement Reid. And the Committee, and Mr. Reid more especially, are to be heartily congratulated both on the thoroughly satisfactory way in which their work has been done, and on the clear and decided conclusions to be derived from it.

T. V. Holmes.

It may be worth mentioning, in connection with this question of the relation of the palæolithic deposits of the Eastern Counties to the chalky Boulder Clay, that the present writer in a paper read before the Geological Society in 1892 ("Q.J.G.S.," vol. xlviii, p. 365), pointed out that a cutting on the new railway between Upminster and Romford showed the Boulder Clay to be older than the palæolithic deposits of the Thames Valley.—T. V. H.

The American Anthropologist. Vol. ix, Nos. 10–11. (No. 10.) "The Būcăn Ceremony of New South Wales" (illustrated), by R. H. Mathews; "Pueblo Indian Clans" (with Fable), by F. W. Hodge. (No. 11.) "Pacific Coast Shells, from Prehistoric Tusayan Pueblos" (illustrated), by J. W. Fewkes; "The Eskimo and their Written Language," by Chas. Hallock; "The Beginning of Marriage," by W. J. McGee.

The American Antiquarian. Vol. xviii, No. 6. "Manufacture of Abraded Stone Implements" (with Plate), by W. H. Holmes; "Mounts and Cists at St. Paul," by T. H. Lewis (illustrated); "A Remarkable Discovery of an ancient city in Mexico"; "From two Republics, Mexico"; "Garden Beds in Michigan Modeled," by H. E. Oaks; "King David's stone Stairway," by

T. F. Wright; "Symbols in the Carved Rocks on Mosquito Shore," by Wm. D. Farrington (illustrated); "When Patlatches are Observed," by James Deans; "A Choctaw Cemetery in Alabama," by H. S. Halbert; "Ancient and Modern Pueblo Architecture," by Steven D. Peet (illustrated); "Migrations of the Indian Tribes of the Atlantic Coast," by Dr. C. Thomas.

The Educational Review. Vol. x, No. 5. Contains among other articles—"The Proper Study of Mankind" (with illustrations), being a review of Prof. A. H. Keane's "Ethnology," in the Cambridge Geographical Series.